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success



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MRC Super Brain 969

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PICS FROM THE HOTTEST  
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p. 128

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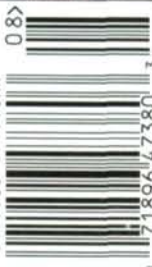
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# RADIO CONTROL car action

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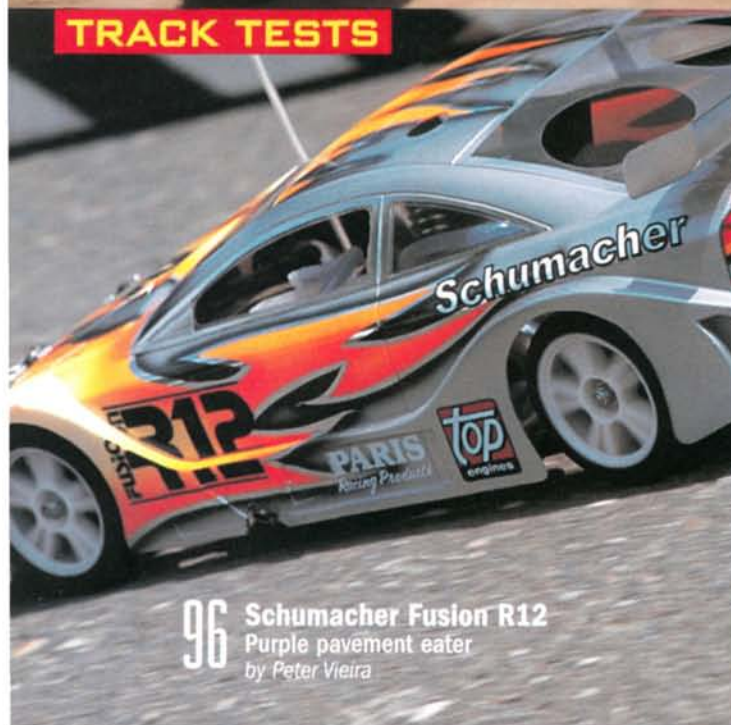


# RADIO CONTROL car action



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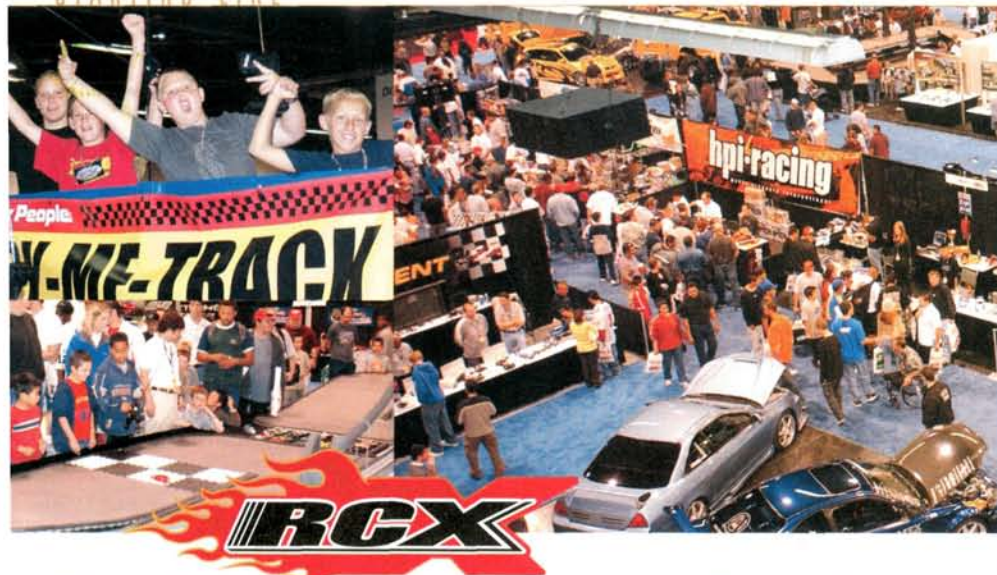
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**ON THE COVER:** (from top) Schumacher Fusion R12, sporting a Frewer DTM body and TakeOff wheels; MRC's new Super Brain 969 charger, ready to juice up a 3000mAh pack; and the Pro-Line girls, straight from RCX. John Howell lensed the ladies, Pete Hall snapped the R12 and 969.



STARTING LINE



## The Greatest RC Show on Earth!

Sorry, P.T. Barnum; your three-ring circus of animal acts, high-wire daring and scary clowns has been outdone. If you're an RC guy (or gal), the "greatest show on earth" is unquestionably RCX. The hot products and even hotter action are captured in "Inside Scoop" and our six pages of event coverage (see page 128), but mere words and pictures really can't convey the energy that filled the halls of the Anaheim Convention Center as the first ever RCX show pulled thousands of RC fans—both new and established—into a true RC event.

Among the many attractions was a killer dirt track, custom designed for RCX using dirt that was part of a supercross track only days before. As the siren songs of screaming 2-stroke engines and the unmistakable scent of 20-percent nitro filled the air, throngs of show-goers filled the bleachers and pressed against the chainlink fence that surrounded the track. The sight of the cars and trucks unloading roost as they rocketed around the track drew cheers, but when the 1/8-scale buggies began performing backflips over the freestyle-motocross-style launch ramps, the place exploded.

The RC action wasn't limited to the dirt. Hobby People's expansive oval track was the epicenter of the show. It featured a steady stream of demos with vehicles from the big brands at the show, and it provided plenty of opportunity for show visitors to take the wheel themselves. Airplane people and boaters got into the act, too, with nearly nonstop aerobatics in the Flight Zone and wild water wipeouts in the portable pond. And we can't forget the Steel Conflict robo-battles (seriously, we can't forget because our ears are still ringing!); television just doesn't do these mechanized monsters justice. To truly appreciate the sound of shredding steel and the force of robots as heavy as refrigerators clashing sumo-style, you really need to be at RCX.

So be at RCX! You've got a whole year to plan your trip; be there April 24 to 25, 2004, at the Anaheim Convention Center!

### IN THIS ISSUE

#### Car of the Year is here!

Aww, what the heck; I'll spoil the surprise: it's the Associated RC10 B4 Stealth buggy. Here's a little secret: *Truck of the Year* is revealed in this issue, too! We'll have the whole story next month, but if you read this issue carefully, you'll discover the winner buried in a caption.

#### Tires, tires and more tires!

If your T-Maxx (or any other truck that can wear T-Maxx tires) is looking for new sneakers, we have the ultimate guide for you. From street steamrollers to stump-pullers, all the chunky treads are here.

#### Ready-to-run Worlds winner!

Only Kyosho can claim six IFMAR World Championship titles, thanks to its hugely successful Inferno series. Now Kyosho is building the buggy for you! Our SoCal guy, Jason Sams, has the full review.

#### Charge cheap!

MRC has a new addition to the Super Brain family, and the latest Brain has more features than ever—but it's still super-affordable. The complete review is on page 180.

And there's lots more. Hope you like it! Until next month.

Peter Vieira  
Executive Editor

## RADIO CONTROL car action

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## READERS WRITE

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# TRINITY

### NO, THANK YOU

I've been racing RC cars for about five months now with my friend, and I always take my *RC Car Action* books to school and read them during my free time. Recently, I pulled out the July 2003 issue in math on a free day, and people started crowding around to look at it. To make a long story short, I got 10 people hooked on RC! My car broke a while back, so when I save enough money, I want to get an E-Maxx and race with my newly addicted RC friends. Thanks for the awesome books!

Shawn Branch  
Coolinga, CA



### CLUNK IS BUNK

I hate it when I flip my truck 50 feet from me and can't get to it in time to flip it back over before it dies. I just heard about a "clunk"-type tank and am curious whether it would work in a truck. I've also looked at a bladder tank, but that seems too complicated compared with a normal tank. Any help or advice would be appreciated.

Tony Williams  
Hermitage, TN

"Clunk" tanks are used in airplanes to prevent the engine from starving for fuel while the plane flies upside down or makes other maneuvers that would pull fuel away from a fixed pick-up. The clunk is simply a flexible pick-up in the tank that falls wherever the gravity leads it, so it's always submerged in fuel. You could fit one into your truck, but clunk tanks aren't designed for quick fill-ups. My advice? Run faster when your truck flips over.

—Pete

### DAD'S BUYIN'

I am 13 years old and have been into RC since I was about 6. I have brought many of my friends into RC, but now I'm thinking of going into nitro. My dad said he would split the cost of a T-Maxx with me because that's the only one he likes, but I don't think I want to do that because he might always want to drive it himself. I don't even want the T-Maxx; I want something smaller for my first nitro—maybe a stadium truck, or even a car. I like the Street Force and the DuraTrax Maximum BX. I also called around for used RC cars, but they might require a lot of repairs, and I'll then spend as much on a used car as I would on a new one. Please give me a few ideas for a first, not too expensive nitro.

Michael Thomas  
Beaverton, OR

What are you, nuts? If your dad wants to go halves on a T-Maxx, let him! I guarantee that after two weeks of sharing, he'll buy his own T-Maxx. Don't worry about vehicle size; although the Maxx is physically larger than the other vehicles you mention, it still uses a small-block engine—one of the best in RC, as a matter of fact. I'm with you on staying away from used nitro, if only because of the "you never know" factor. Now drag your dad to the hobby shop.

—Pete

### ELECTRIC HICK REBELLION!

I live in a hick town in Vermont, and five of my friends and I all have electric Traxxas cars. We're lucky to live near one of our state's only two hobby shops with RC tracks; however, it has only a gas class because the owners claim there aren't enough electric racers. But at my school alone, there are enough people to race, so we plan to see if they'll open a new class, or if they're really against electric.

Sam Wagner  
Swanton, VT

If you show up with enough guys to race electric, then you'll get a class—unless the track operator doesn't like customers or money. Then you have a problem.

—Pete

### THANKS FOR THE MEMORY

I am thoroughly confused on how to get good cell memory. Is it permanent? What should you do with a new pack? The list goes on. I've heard many different things from the forums; any help will be appreciated. [email]

Aaron

The only good cell memory is no cell memory. Theories abound on how to get the absolute most from your cells, but the basic rule is simple: always completely discharge your packs before you recharge them. That's it.

—Pete

### YES

Why does the Dodge Stratus body continue to be the preferred body for touring car racers? Is it just because of aerodynamics? [email]

Mark Matsumoto

Yep, aerodynamics; the same reason for dish wheels. I personally long for the days when we ran a variety of bodies and realistic wheels instead of identical bars of soap with slotted grills, but that's racing.

—Pete

### BLAST OFF

I'm a 13-year-old kid who reads *RC Car Action* all the time. I have a Team Associated RC10 T3 with a DuraTrax Blast speed control. I have asked all sorts of people which type of motor I should buy—stock or modified? Also, I



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## READERS WRITE

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# TRINITY

recently heard of the number of turns a motor has. I also heard that if I get the wrong type of motor, I could fry my speed control. This may seem like a rookie question, but I've never had a clear answer. [email]  
*Sean*

The Blast is rated for use with 27-turn stock motors only (for example, Reedy MVP, Team Orion Core, Trinity Green Machine 3 and P2k2). You could probably go down to a 23- or 20-turn safely, but I think you'll be happy with the speed of a good stock motor.  
*—Pete*

### ROLLIN' ON DUBS

The March issue of *RC Car Action* had an article called "Trick Trucks." You used an HPI F-150 body on the TAO4-R with Super Nitro wheels. Since the body is 200mm wide and



the chassis only 186mm, do the Super Nitro wheels extend the width enough to fill the body, or did you install special wheel hexes to make them extend out that far? I would

like to do the pickup theme with an RC-Lab 7, and it is only 185mm wide. [email]  
*Bill Brice*

I just stuck the wheels on, and they filled out the body just fine (watch out for steering clearance, though). I'm not sure how long the axles are on your RC-Lab car, but most tourers have enough axle for you to put a washer between the hex hub and the wheel to increase offset a millimeter or two.  
*—Pete*

### BIGGER BETTER?

Thanks for the great mag; I read my issues over and over again. Could you point me in the right direction? I'm looking to upgrade my old Maxx. .15 engine. In the newest mag, all the engines look pretty cool, but I can't tell whether I'd be able to use some of them as a drop-in engine. I don't want to change anything except my engine. I would also like to go with a larger displacement yet still have some money left! What would work for me? [email]  
*Noal*

Don't get too hung up on "bigger is better"; the Maxx seems to run best with hot small-blocks. Try the new Traxxas TRX 2.5 engine. It's a guaranteed drop-in and has enough power to shame many "sport" big-block engines. Trinity also has a .18 engine designed to fit the Maxx that I hear is a fire-breather. Check that one out, too.  
*—Pete*

## YOU SAID IT

### "I didn't have to ask my parents for a dime"



I'm only 13, so unless it's Christmas or my birthday, I don't have any way to buy RC stuff or PlayStation games or CDs and stuff. I tried to get an allowance from my parents, but it was only \$10 a week, and at that rate, buying an HPI Savage would take a year—and that's if I never spend money on anything else. But then I thought about how you've told kids before that there's lots of money around if you look for it. So I went to the houses in my neighborhood and just offered to do stuff. If someone's car was dirty, I'd offer to wash it. If their grass was long, I'd cut it. One guy asked me to scoop up the dog poop in his yard (which I really didn't want to do), so I said, "\$20." He didn't even blink. Instead of in a year, I

had my Savage in a month, and I didn't have to ask my parents for a dime. So I'm just writing to say that whining doesn't pay, but work does. [email]

*Ethan George*

Good for you, Ethan! I especially liked how you held out for top dollar on the doo-doo. Let me know which Trinity Reference body you want!

*—Pete*

Each month, "Readers Write" sponsor Team Trinity awards the "You said it" letter writer the Reference body of his choice. This is Trinity's C-Machine.

**WRITE TO US!** We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

■ Peter Vieira: [peter@airage.com](mailto:peter@airage.com)  
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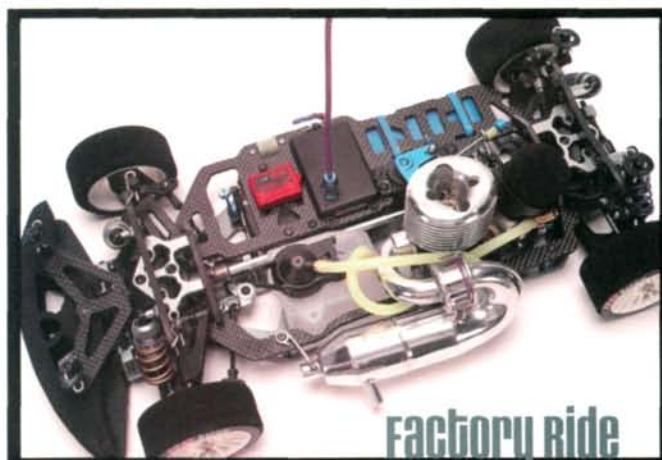




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optioned  
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## HTM Full-option X-terminator & X-Factor monster truck

XTM will be offering this fully optioned edition of its new X-Factor nitro monster truck. A new version of the 24.7 engine is included, as is an aluminum ladder frame and numerous other hop-ups. XTM, distributed by Global Hobby Distributors (714) 964-0827; globalhobby.com.



**Factory ride**

## OFNA LD3 Full option

If OFNA's pro-model touring car isn't well-spec'd enough for you, then you need to check out this full-option model. The LD3 Full Option comes with a factory-finished body, a graphite upper deck, aluminum and graphite two-piece shock towers, machined Delrin lower suspension arms, a machined 7075 aluminum chassis, swaybar mounts, hinge-pin holders, a bearing block, steering bell-cranks, servo mounts, a Centax-type clutch with thread-on gears and a carbon brake shoe.

OFNA Racing (949) 586-2910; ofna.com.

**W**elcome to a special RCX edition of "Inside Scoop." While at the RCX show (check out the article on p. 128), the editors compiled a list of the latest and greatest products for your perusal.

**ready to go pro**

## CEN CT-4R nitro touring car

It looks as if CEN has decided to enter the world of competition touring cars with the introduction of its new CT-4R nitro touring car. The CT-4R includes many of the same features as are currently found on competition-level cars. Plus, the CT-4R has an extra advantage for those who have an interest in "larger-than-legal" engines; it fits a big-block engine without the need for conversion parts. As shown, the CT-4R can be powered by a race-legal small-block, a .21, or a .27 engine. CEN/Genka Trading Corp. (714) 792-1923; cenracing.com.



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to-run  
racer**

## HTM Xcellerator RTR stadium truck

XTM is jumping into the stadium truck market with its new Xcellerator. This new truck will be powered by the new XTM .18 pull-start engine and will feature suspension designed for performance. XTM, distributed by Global Hobby Distributors (714) 964-0827; globalhobby.com.







big  
black  
rig

### Tamiya knight hauler prototype

During RCX, we got our first up-close look at Tamiya's brand-new semi: the Knight Hauler. Tractor-trailer fans around the globe will be happy to know that this 1/14-scale tractor-trailer will be available almost any time now, and it can be linked to any of Tamiya's tractor-trailer sets. Tamiya reps were quick to point out that this version is an early prototype and that the final version may feature a few slight changes. Tamiya America (800) 826-4922; [tamiyausa.com](http://tamiyausa.com).

rtr  
racer



### Yokomo GT-4 RTR II

The ready-to-run version of Yoke's popular GT-4 platform has a few new touches including fresh body options, a larger heat-sink head and new factory-glued rubber. Triple-belt, pivot-ball performance and full upgradeability to pro-car specs are still standard, of course.

Yokomo (949) 252-8663; [yokomousa.com](http://yokomousa.com).

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## RETRO BRONCO

### HPI RACING Ford Bronco body for the savage 21

Old-school off-rovers, rejoice! You'll soon be able to pick up this beautiful Bronco for your Savage (it will also fit your T-Maxx). The shell even includes an optional blower setup like the one that's on HPI's El Camino shell. Break out your 1970s back issues of *Four Wheeler* for paint ideas!

HPI Racing (949) 753-1099; hpiracing.com.

## twin terror

### OFNA Experimental dual-engine titan

OFNA has a lock on the largest monster truck title, and it looks as if it's gunning for "most powerful," too. This thing is totally proto, so don't bother asking for a release date, but some of its parts are available now. The truck seen here was equipped with CNC ladder braces, an upper rod brace holder and battery holder, hardened-steel diff gears and ring/pinion gears. In addition, it uses twin Picco .26 engines and dual OFNA o63 pipes.

OFNA Racing (949) 586-2910; ofna.com.



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## YOKE BRINGS BACK THE MINI

### YOKOMO MR-4TC Mini

Yokomo is reviving the "mini" class with this new release, but we're not talking about 1/24- or 1/18-scale cars; we're talking about the 1/12-ish "minis" that were big (so to speak) about 5 years ago. Yokomo's car looks like a high-performance piece, thanks to a graphite chassis, a proven belt-drive system and 1/10-scale, sedan-size wheels and tires. Yokomo (949) 252-8663; yokomousa.com.



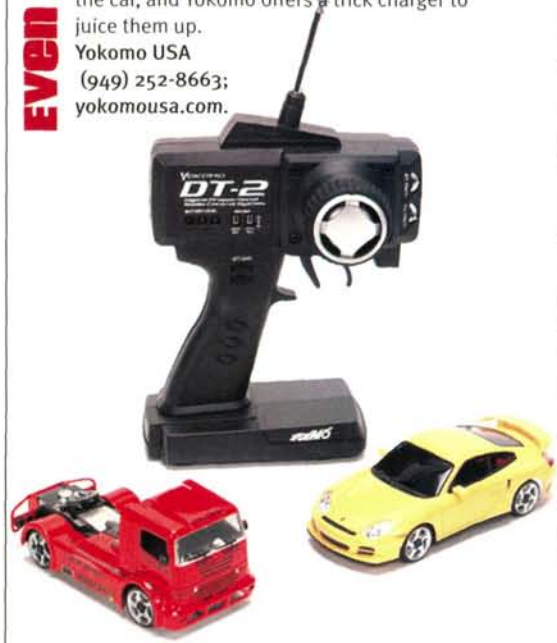
### RC SOLUTIONS cyber-maxx Armored skeletal system

Well, the name really says it all, doesn't it? RC Solutions' roll cage is super-strong, as evidenced by the many "testers" who happily stood on top of it (and we all know how fat RC dudes can be—especially *RC Car Action* editors). The 6061 aluminum cage fits the stock Maxx chassis, or you can opt for the total Cyber-Maxx conversion kit that comes with cage, air-cleaner mount, extended chassis and brake lever, .21 engine mounts, bulkhead spacers, shock towers (with built-in over-travel limiters), shear plate, spring-steel skidplates and all the necessary hardware. RC Solutions (480) 609-7233; rc-solutions.com.

### YOKOMO sonic

Yokomo's new 1/24-scale Sonic line includes well-sculpted bodies of its own and also accepts bodies designed for Kyosho's Mini-Z series. A full-size, full-featured DT-2 transmitter controls the action, and the little chassis features sprung-kingpin independent front suspension, a monoshock rear pod with built-in diffuser and an integrated electronics package. Tiny 270mAh cells power the car, and Yokomo offers a trick charger to juice them up.

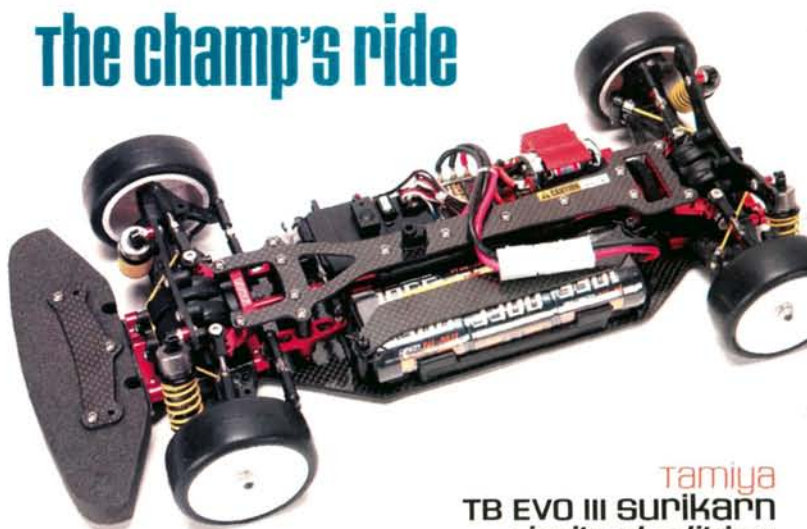
Yokomo USA  
(949) 252-8663;  
yokomousa.com.



### Beef up your Maxx RPM MAXX hubs

RPM now offers new hubs for the Traxxas T-Maxx and E-Maxx trucks, and it claims they're more durable than the stocker units. The hubs are available in a stealthy black (if you don't want anyone to know what you've got) or in the more easily RPM-identifiable purple and blue. RPM RC Products (909) 393-0366; rpmrcproducts.com.

## The champ's ride



### Tamiya TB EVO III surikarn Limited Edition

The world champion now has a shaft-drive car with his name on it, too. Having won the IFMAR World Championship with a belt-driven 414M2 car, there was already one car named in his honor. While running the shaft-driven TB Evo III at the Thailand International Touring Car Championship, Surikarn won both the Stock and Modified classes. That earned him the privilege of having his name put on a second top-level racecar from the biggest RC manufacturer in the world. Tamiya America Inc. (800) 826-4922; tamiyausa.com.

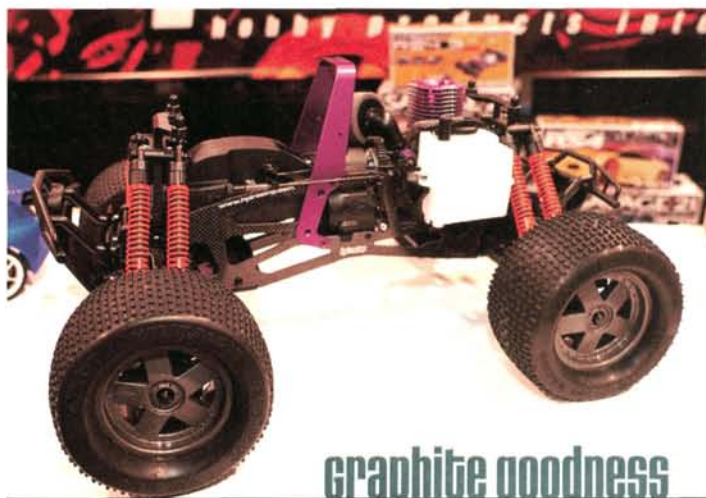


## one sick ride!



### PTI virus 1/12 car

PTI's new Virus 1/12-scale car includes such features as dual shocks (that allow infinite tweak adjustment) and a very lightweight design. The batteries are on the centerline for a reduced polar moment of inertia. In addition, the Virus has an adjustable front width and a narrow lower plate for improved handling. PTI (714) 543-8112; ptiracing.net.



## graphite goodness

### HPI Racing savage graphite TVP chassis set

HPI Racing recently released this new optional TVP (twin vertical plate) woven-graphite chassis for its popular Savage .21-powered monster truck. The package weighs less than the standard aluminum chassis plates, yet it is easily as rigid (plus it looks cool!). HPI Racing (949) 753-1099; hpiracing.com.

### OFNA

## check your temp

This tiny temp gauge packs a lot of features into its compact case. You can switch between Fahrenheit and Celsius readouts, and it will save the maximum and minimum settings. You can even adjust emissivity, and it will set you back only about \$30. OFNA Racing (949) 586-2910; ofna.com.



## time for a revolution

### PTI Evo2 Revolution

The last time we saw a pair of trailing arms, they were on an A&L converted RC10, and Flock of Seagulls was a hot band. PTI has brought back the setup for its Evo2 Revolution sedan, and it makes "something different" the understatement of the century. According to PTI's press release the Evo2 features: "F1-style rocker pivots combined with perfectly efficient anti-roll action and monoshock make for smooth, low-profile front construction." It has: "... a low polar moment of inertia for balanced transitional handling, rear suspension tailored for sufficient traction without excess body roll and a center-aligned battery pack to ensure perfect lateral balance." When we get an actual sample for testing, we'll see whether the car actually lives up to these claims. One thing is certain—it's a wild-looking machine! PTI (714) 543-8112; ptiracing.net.

### Fioroni option

## Team setup fixtures

If you're a serious racer and you want to dial in your RC car, check out Fioroni's setup fixtures that accurately measure camber, caster and toe-in. Version OTSU01 fits all 17mm-hub 1/8-scale buggies; OTSU02 fits all 1/8-scale on-road cars; and OTSU03 fits all 200mm nitro touring cars.

Fioroni Option Parts; distributed by General Silicones Co. (626) 338-3815; generalsilicones.com. ■

## sweet setup





# readers' rides

## YOUR BEST BUILDS

### ERIK MITCHELL, PLYMOUTH, MN TAMIYA CLOD BUSTER

Erik's Clod Buster—"The Ripper"—is one bad-looking truck! It has a ton of mods. It's equipped with: a Thunder Tech Ripper graphite chassis; two Trinity SpeedGem motors; a Novak Super Rooster; IMEX puller tires; a 7-cell battery; Futaba radio gear; wheel wideners; and a custom-painted body by FCA Grafix. Nice setup Erik! This Clod got a thumbs-up from our resident trucker Kevin "Hingeboy" Hetmanski.

READERS'  
RIDE  
OF THE  
MONTH



### MARK NOEL MENDOZA, MILWAUKEE, WI YOKOMO GT4

Talk about a highly modified car! Mark's Yokomo is equipped with: a front one way; a solid rear axle; aluminum wheel nuts; aluminum front and rear shock towers; a rear bulkhead; a rear side pulley; titanium turnbuckles; low-friction universals; and aluminum,



clamp-type wheel hubs. Want some more mods?

How about a Centax clutch, a graphite radio tray, KO Propo radio gear, a .12 RB engine, an X12 polished pipe, Ellegi 26mm front tires, CRC 32mm rear foam tires, aluminum racing shocks, a Race Guard fail-safe system, a K&N air filter and an HPI Dodge Stratus body. That's a lot of mods, Mark!



### MIKE LOVE, ASHBURN, VA TRAXXAS T-MAXX 2.5

Mike gave his new Traxxas T-Maxx a paint job to match the one that's on his full-size Jeep Wrangler. The T-Maxx is equipped with more than a few mods; among the most notable are: a New Era wheelie bar/rear skidplate; front and center aluminum skidplates; a roll bar; a cooling head; a Robinson Racing forward-only setup; and a Robinson Racing aluminum brake-disc kit. Mike tells us that he plans to add many more upgrades. Before you know it Mike, your T-Maxx will be faster than your full-size Jeep!



### MICHAEL MULKEY, COMMERCE TWP., MI DURATRAX STREET FORCE GP

Michael's 'stang is ready to hit the strip or street! The Bolink '65 Mustang muscle-car body has working headlights and taillights, and it covers a mildly hopped-up DuraTrax Street Force GP. The chassis mods include a set of swaybars and a 3-shoe clutch. An O.S. .15 CVR engine is mated to the clutch, and Michael uses a Hitec Lynx 3D radio system to control the car.

## WIN A ONE-YEAR SUBSCRIPTION TO RADIO CONTROL CAR ACTION MAGAZINE!

Send a sharp, uncluttered, well-exposed color photo of your vehicle (no Polaroids) and a brief description to "Readers' Rides," *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we publish your photo, you'll receive a free, one-year subscription to *RC Car Action* and will be eligible to win the "Reader's Ride of the Year Contest." Write your address and phone number on your letter and on the back of every photo you send. Good luck!



## WILLIAM PETTY, SALT LAKE CITY, UT TRAXXAS T-MAXX HYBRID

It's listed as a Traxxas T-Maxx, but William's truck is actually more aftermarket than stocker. It's equipped with: an O.S. .21 engine and a Crazy Nut Racing head; aluminum Robinson Racing transmission cases and gears (it's rear-drive only); RC Trix bulkheads; and A-arms, shock towers and Airtronics radio gear. Apparently, that stuff is only the tip of the iceberg; the Maxx is topped off with a custom-painted body (by Todd Wilcox of Salt Lake City) that features flames and the Harley Davidson bar and shield logo. William says the truck took him three months and approximately \$2,500 to build!



## RICH HAUPTMANN, LAKE VILLA, IL ASSOCIATED FACTORY TEAM TC3

Underneath this patriotic NSX body is a Team Associated Factory Team TC3. Rich races his TC3 at Venture Raceway (his first time out, he finished third in the B-main). The car is powered by a Reedy MVP Pro motor, a Novak GT7 ESC and Trinity 2400 batteries, and he controls it with Airtronics gear. Rich added in his letter, that his car's patriotic theme is "... my way of showing support for our troops." Nice job, Rich!

# The Best Kept Secret in Racing...



### Reedy "X-cell" GP3300's.

Reedy/Yokomo Gold Peak 3300's have longer run times than most other 3300 MI-MH cells, and have a great low price that makes them your **BEST** choice!

#665 Reedy GP3300  
"X-cells", 6-Cells...\$89.99

#664 Reedy GP3300  
"X-cells", 4-Cells... \$59.99



**Reedy 3300 "Extreme" Sanyos.** The newest 3300 Ni-MH cells from Sanyo! The Reedy 3300 "Extreme" cells are cycled, matched, and voltage treated for on-track performance you can really feel.

#660 Reedy 3300 "Extreme" Sanyos, 6-Cells...\$129.99

#659 Reedy 3300 "Extreme" Sanyos, 4-Cells... \$87.99



**FRED MULALLY,  
ST. PETERSBURG, FL  
TEAM LOSI TRIPLE-X  
& BOLINK LEGEND**

These rides are decked out with an Eddie Van Halen tribute motif. Fred says the designs were influenced by his love of music, and it's a unique way to identify his cars among countless others. The Losi Triple-X has been autographed by Team Losi's Brian Kinwald, Matt Francis, Adam Drake, Jukka Steenari and Ryan Cavalieri. The Bolink car was autographed by the legend himself—Eddie Van Halen! Fred has won his local Bolink Legends champ series for two years in a row with it.



**ERIK CHAPMAN,  
MALIBU, CA  
TAMIYA TL-01**

Erik's Tamiya TL-01 has a whole host of upgrades. His list of mods includes: XTM ball bearings; HPI wheels with Yokomo Hot Laps tires; a Protoform F360 body; HPI shocks; Tamiya sway-bars; aluminum wheel hex drives; and a hollow carbon-fiber propeller shaft. For control and power, Erik uses Airtronics radio gear matched with Trinity batteries and a P2k stock motor. ■

# and New **MATCHED** Sport Packs!



Reedy's "Rated-X" Matched sport pack batteries use genuine Panasonic or Sanyo Ni-MH cells that have been given the same cycling, matching, and voltage treating as Reedy's championship-winning racing cells. The batteries are fully assembled in clear tubes so you can see the matching info right on the label of each cell. Don't settle for "mystery" cells in your sport packs... get Reedy's "X-Rated" packs and see the power you've been missing!



#698 Reedy "Rated-X" Sport Pack, Sanyo cells

#699 Reedy "Rated-X" Sport Pack, Panasonic cells

**ONLY  
\$59.99**



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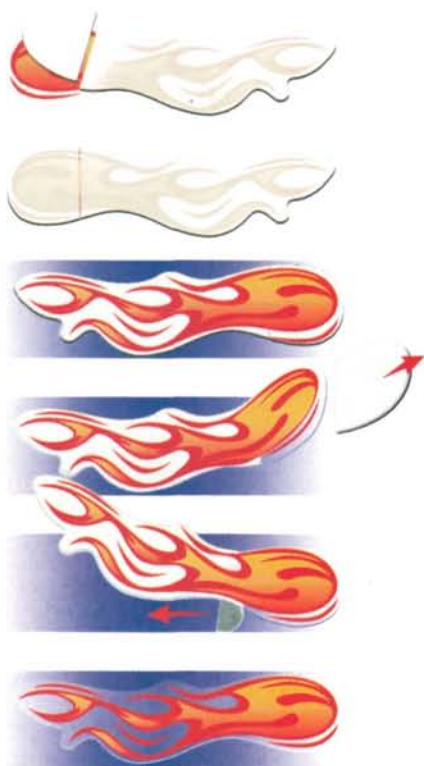
HINTS, TRICKS, TIPS AND IDEAS FROM READERS LIKE YOU



### SECOND CHANCE TO ADD SHRINK-TUBING

If you ever forget the shrink-tubing when you've soldered wires, this tip is for you. Slit a length of shrink tubing and place it over the wires. Carefully run CA along the slit, allow it to cure fully, and then shrink the tubing in the usual way.

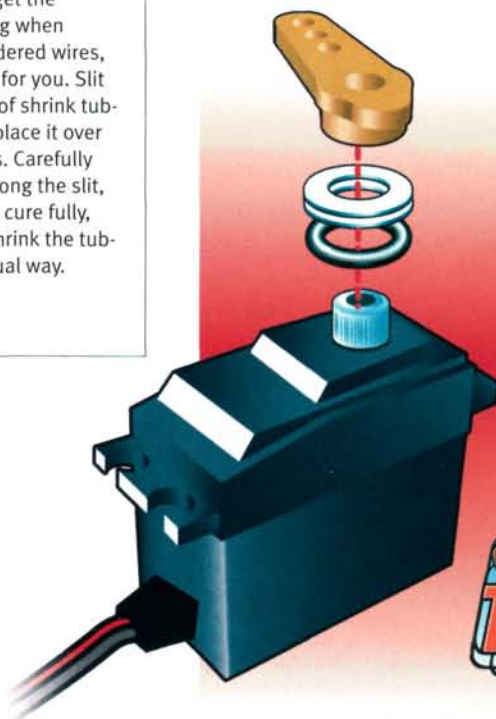
*Dave Landau  
Scottsdale, AZ*



### PERFECT DECAL PLACEMENT

For perfect decal placement, cut the decal out of the sheet, peel away one third of the backing and cut it off; then put it back on the decal. Next, properly position the decal on the body, hold it in place, and remove the small piece of backing that you cut off earlier. Rub the decal's exposed sticky area firmly onto the body, then remove the rest of the backing and burnish the entire decal down.

*Paul Elliot  
Ottawa, KY*



### SEALED SERVO OUTPUT SHAFT

Water and fuel can find their way into your servo through its output-shaft opening. Seal this area by slipping an O-ring over the output shaft and installing the servo horn over it. If the servo horn's base doesn't contact the O-ring, install 6mm Teflon shims over the output shaft. When fully tightened, the servo horn should just lightly compress the O-ring.

*Bill Kibler  
Hastings, PA*



### CONVENIENT CLEANER

Add a container of baby wipes to your pit bag instead of a bottle of cleaner and paper towel or rags. The wipes come in a handy dispenser and work great for cleaning exhaust residue off bodies and chassis.

*B.J. Emmerson  
Evansville, IN*

### BALL-STUD REPLACEMENT

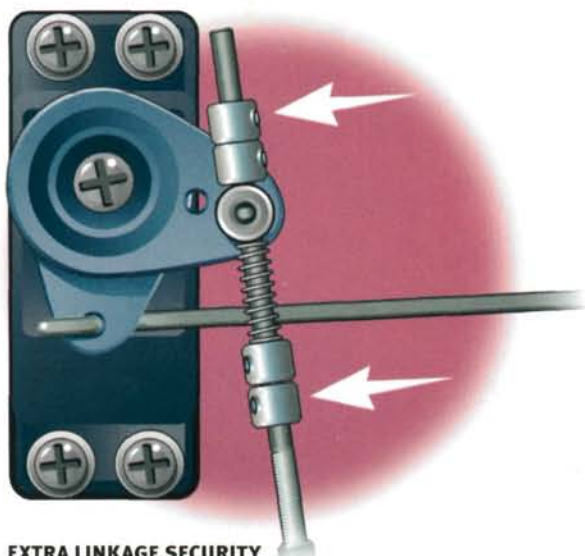
If you break a ball stud, you can temporarily use a hex screw in its place. Drill an 1/8-inch hole through the top of the ball cup, and pass a 4-40 screw through from the cup's open side. Thread the hex screw into the shock tower or bulkhead until its head is inside the cup, and check for freedom of movement. If the cup binds, loosen the screw or squeeze the cup with a pair of pliers.

*Jim Newman  
Kansas City, KS*



WIN AN OFNA YO-YO, OFNA OB4 AND RC CAR ACTION SUBSCRIPTION! SEE NEXT PAGE FOR DETAILS.

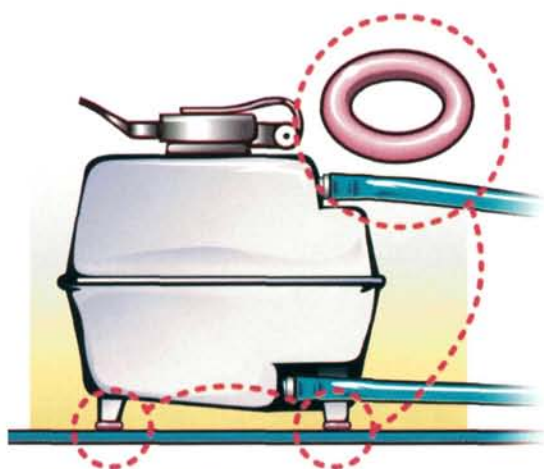




#### EXTRA LINKAGE SECURITY

Throttle and brake linkages are usually held by collars with setscrews. If the setscrew loosens, you could lose control of the engine or the brakes. Add a second collar for extra security in case the setscrew in the first collar loosens.

Mark Sullivan  
Melbourne, AR



#### STOP FUEL FOAMING

If your fuel tank is solidly mounted on your car's chassis, it will be subjected to considerable vibration that can cause fuel foaming. To damp the vibration, place O-rings over the mounting screws between the tank and the chassis, then tighten the screws only just enough to compress the O-rings slightly.

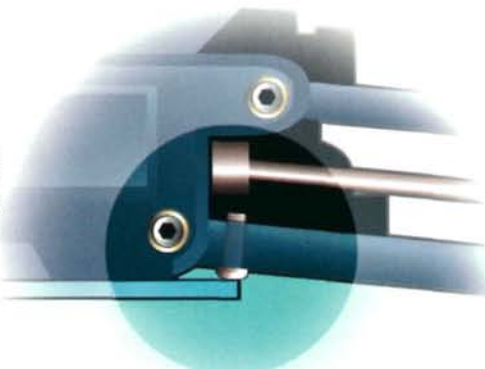
Andrew Attardo  
Huntersville, NC

#### OVERDRIVE ST MOD

When the DuraTrax Overdrive ST's suspension is fully extended, the end of the dogbone can bind on the edge of the drive cup. You could install shock-travel limiters, but it's easier to insert a small screw in the lower suspension arm to limit its travel.

The lower suspension arm has holes for droop screws. Insert a screw from the bottom of the arm, and the screw head will limit suspension downtravel so that the dogbone cannot come out far enough to bind.

Bill King  
Tarrytown, NY



#### PAINTBRUSH ALTERNATIVE

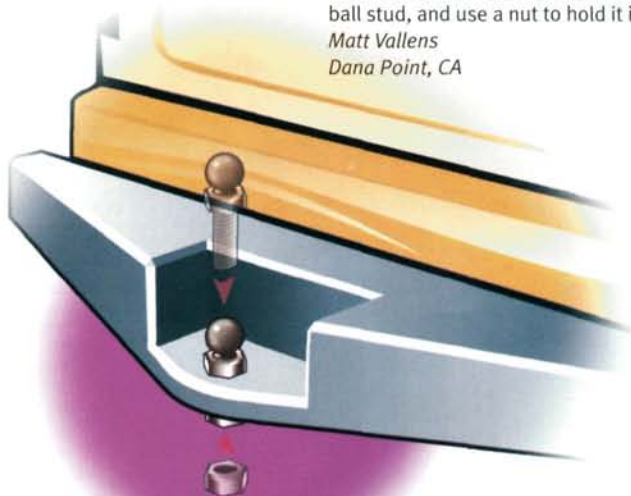
A matchbook match makes a great micro paintbrush for touching up chipped bodywork and painting small details. Just tear out the match, and use its torn edge as a brush.

James Daniels  
Norwalk, CT

#### SIMULATED TRAILER HITCH

Make a scale-looking trailer hitch by using a ball stud. In the body or bumper, make a hole that's large enough for the threaded portion of the ball stud, and use a nut to hold it in place.

Matt Vallens  
Dana Point, CA



"Pit Tips" are submitted by readers and are screened for functionality, feasibility and safety but are not tested by Radio Control Car Action. Radio Control Car Action and the submitting authors are not responsible for personal injury or damage to models or tools resulting from readers' use of "Pit Tips."

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# troubleshooting

YOU'VE GOT PROBLEMS? WE'VE GOT FIXES.

## NITRO BLUES

I need help with my 1/8-scale buggy. My car has been running funny lately. After I start it, the engine keeps revving up high, and I have to kill it because I'm afraid it will blow up! I run a brand-new O.S. .21, and I bought it because I thought it was a high-quality engine. I have only a few tanks worth of fuel through it. What's the deal?

Josh Livery

Josh, you didn't give me much information, so I'll run through the most obvious causes and hope to get you looking in the right direction.

First, check your throttle linkage; it is the most likely cause of your problem. When the throttle trigger is in the neutral position, the carburetor should close as far as the idle-speed screw will allow. The carb should consistently close to an approximate 1mm opening. If your linkage and throttle-trim settings on the radio check out, it's time to take a closer look at your mixture settings.

An excessively lean fuel mixture commonly causes the condition you describe. A lean fuel mixture causes the engine to race even when you're off the throttle, so check to make sure that your carb settings are in the ballpark. Refer to the owners' manual to set it to the factory-recommended settings, and then tune from there.

Another potential problem is "false idle." It's when you've set the mixture too rich (either on the high-speed needle or the low-speed needle), and to compensate for that, you set the carb's idle screw to open the carb more than it should, e.g., it's now open 3mm instead of 1mm. Basically, the engine now idles at around 3/4 throttle! If, for some reason, the engine has cleaned itself out or it has been leaned out, the idle is now set way too high and has to be readjusted.

If all else fails, look for air leaks. The high revs you experience could be happening because too much air is getting into the engine. Check for a leak around the base of the carb and for a hole in your fuel line; check that the head is bolted on properly, etc. Check all these things before you start the engine again.

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**RRP**  
 ROBINSON RACING PRODUCTS



A close-up of a carb in the idle position. The small, black (circled) section in the barrel is the recommended 1mm gap. Any smaller, and your engine won't run; any more open, and the engine will over-rev.

## REAL PERFORMANCE PRODUCTS!

### T-Maxx/2.5-Maxx Steel Top Shaft

NEW



This precision machined **hardened** steel top shaft will fit all T-Maxx. Includes oversize ball bearing. RRP 8525

### T-Maxx/2.5-Maxx FORWARD ONLY Steel Gear Kit

NEW



This kit contains a 26T **hardened** steel output gear, a forward drive hub adaptor, steel spacer and pin. RRP 8586. **Hardened** aluminum version RRP 8585.

### T-Maxx/2.5-Maxx Hardened Forward Primary Gear

NEW



Precision machined from solid steel and then **hardened**. RRP 8529 **Hardened** aluminum version RRP 8528.

[www.robinsonracing.com](http://www.robinsonracing.com)

### T-Maxx/2.5-Maxx Forward Primary and Reverse Gears

NEW



This kit contains a precision machined **hardened** steel primary forward gear, a **hardened** aluminum reverse gear and pin. RRP 8521

### T-Maxx/2.5-Maxx Primary Reverse Gear

NEW



This gear is precision machined from solid aluminum and **hardened**. Includes pin. RRP 8522

## MAKE NO COMPROMISES!

### T/E-Maxx/2.5-Maxx Accessory Spurs



A wide range of spurs fit our Double-Disc Slipper Kits. Choose from machined Super-Tough plastic spurs in 66, 68, 70, 72, 74 and 76T sizes, RRP 82XX, or CNC machined steel spurs available in 65, 72 and 76T sizes, RRP 83XX. Small Clutch Plate/Gear Adaptor fits 65 thru 70T spurs. Large Clutch Plate/Gear Adaptor fits 72 thru 76T spurs.

### T-Maxx/2.5-Maxx Lightened Spur And Double-Disc™ Slipper Kit



RRP's NEW line of Lightened Spur and Double-Disc Slipper Kits for Traxxas Nitro and T/E-Maxx/2.5-Maxx trucks are designed to improve performance and increase reliability. This combo incorporates a machined steel or Super-Tough plastic spur, a Vented Aluminum Clutch-Plate/Gear Adaptor, 2 Slipper Pads and 2 Plates to deliver the adjustability you need and the increased performance that you demand. **Complete Slipper Kits** are available in the following sizes: RRP 8166 Slipper Kit with 66T Super-Tough plastic spur (Stock Size) for E-Maxx RRP 8172 Slipper Kit with 72T Super-Tough plastic spur for Traxxas Nitro RRP 8465 Slipper Kit with 65T Steel Spur for Traxxas Nitro RRP 8472 Slipper Kit with 72T Steel Spur (Stock Size) for T-Maxx. Spurs, Clutch-Plate/Gear Adaptor and Slipper Pads also sold separately.



## BEARINGS GONE BAD

I have problems with my HPI rally car. My friends and I started a small club of sorts. We get together on weekends and run our rally cars on a course we made in my backyard. It has a small section of mudhole (we just run a hose on some dirt for a couple of minutes) to make the course more realistic. Lately, my car hasn't been able to keep up with my buddies' cars. It's really slow now. I lightly spray it with water when we've finished racing to get the mud off, and then I dry it as well as I can. I took the motor out and checked it, and it seems to be fine. I also try to keep my ESC dry whenever we run. Any suggestions?

*Drew Thomas*

Drew, a number of things could be wrong with the car, so I'll go over a few things step by step to see whether we can pinpoint the problem area.

1. Disassemble the car down to the drive train and make sure it has been properly cleaned. Mud and water can wreak havoc on your drive train—especially the ball bearings. Remove the motor, and spin the drive train to see whether it is locked up anywhere. If the bearings have been subjected to mud and water, there's a good chance that they need a thorough cleaning to get them working properly. Use a good bearing-cleaner tool such as the one from RPM with a liberal application of motor spray to get out all the grit.
2. You say that the motor looked fine. If it's a modified motor, disassemble it to make sure that there isn't any debris inside the can. Check your motor brushes and springs. Chances are good that you may need only a new set of brushes and a comm cleaning to get the motor back up to speed.



Bearings are easy to clean when you have the right tool. Place the bearing in a cleaning tool, such as this one from RPM, and blast the dirt away with motor spray.

If you run a stock motor, check the condition of your brushes and brush springs. If they're worn down to little nubs, it's time for some new ones.

3. When you say you "try" to keep your ESC dry, exactly how hard do you try? Do you run it in a rubber balloon or use some form of cover? If you plan to run the car in water and mud but you don't protect it from the elements, water might get in, and that could burn up an FET or otherwise damage the unit. Swap your ESC for one of your buddies' to see if it's the culprit.

### T/E-Maxx/2.5-Maxx Steel Diff Gear Set



T/E-Maxx/2.5-Maxx differential gear set, includes: 1 beveled pinion gear, 1 beveled spur gear, 4 re-usable stainless steel Phillips head screws, 1 tube Associated Black Grease, and a shim kit for spider gears with 10 .003" shims. 2 sets needed per truck. RRP 8590

### T-Maxx/2.5-Maxx Aluminum High Performance Brake Kit



New, lightweight aluminum high performance brake kit, includes bigger, more aggressive brake pads and steel backing plates. One piece vented rotor minimizes side-to-side wobble. Also fits newer T-Maxx. RRP 8562. Older style half shafts use Brake Kit RRP 8560.

**DON'T SETTLE FOR SECOND!**



[www.robinsonracing.com](http://www.robinsonracing.com)

### T-Maxx Vented Flywheels



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP 8551 Blue, RRP 8550 Natural Silver. **NEW 2.5-Maxx Vented Flywheel, Blue Only RRP 8552.**

### T/E-Maxx/2.5-Maxx Replacement Pinion



This precision machined steel pinion fits RRP 8590 Diff Gear. RRP 8591

### FORWARD ONLY Racing Gearbox For T-Maxx/2.5-Maxx



Precision CNC machined from aircraft grade billet aluminum this **FORWARD ONLY** Racing Gearbox will give your T-Maxx or 2.5-Maxx a serious competitive edge. RRP 8595

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## TOURING CAR TOE

When I race at my local touring-car track, everyone tries to tell me how to set up my car. Certain people tell me to run toe-in, while others tell me they run zero toe on their cars. I've run both, but when I tried toe-in (roughly between 1 degree and 2), the car didn't feel ultrafast. Is it me, or is it best to run zero toe to get the car to go at its fastest?

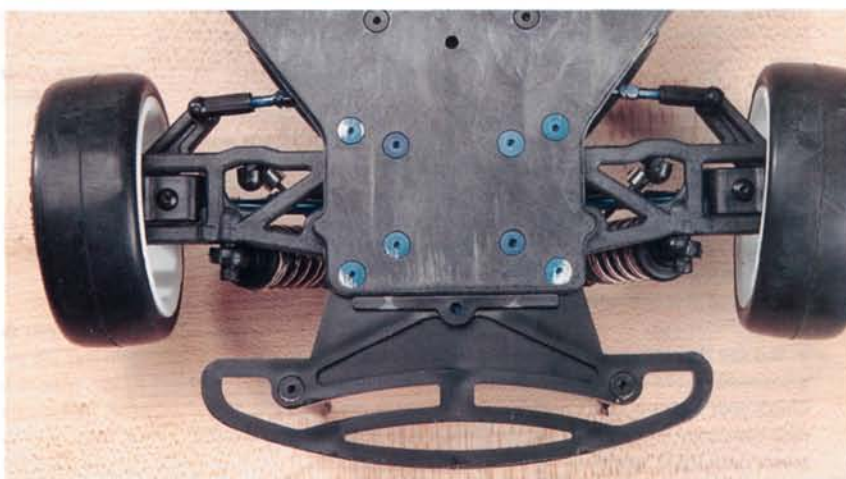
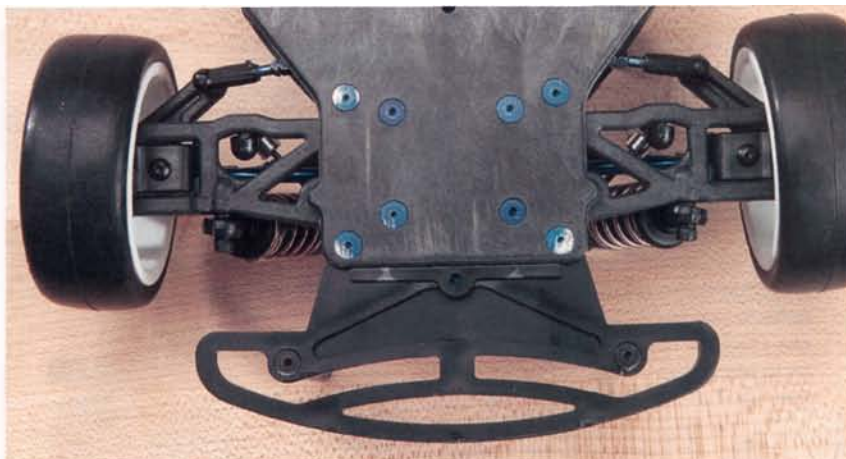
*Tim Ogden*

**Tim, here's the lowdown on toe.** When you run more toe-in, you increase stability and overall straight-line tracking. This makes the car easier to drive, but you do lose a little top speed because of the increased drag on the front tires (since they're pointed inward toward each other ever so slightly, they scrub off a little speed).

If your car is set with toe-out on the front, it will enter turns more aggressively. On exiting a turn, though, it will exhibit slightly more "on-power" push.

Just remember: make only small toe-adjustment changes at a time, and keep track of how the car reacts and handles with each change.

**Above: a car with extreme toe-out. Bottom: extreme toe-in. "Toe" should never be this extreme; just a few degrees will do.**



### RS4 Nitro Aluminum Brake Kit



Lightweight aluminum, variable braking system. RRP 1575

### T-Maxx/2.5-Maxx Hardened Steel Clutchbells



CNC Machined from solid steel these bells are built to last. They take the 5x11 bearing (NOT included). Available in 19T, RRP 8119, 20T RRP 8120, 21T RRP 8121 and 23T RRP 8123.

### RS4 Nitro Vented Flywheel



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP 1570 RRP 1571 Pull Start

### 48P Absolute Series Pinions



Super hard, lightened and cut with unmatched precision. Great with any spur, but with an Absolute spur, even on-off noise is gone! Available in 48P in 16T thru 28T sizes. RRP 1416 - RRP 1428.

### 48P / 64P SuperLite Aluminum Pinions



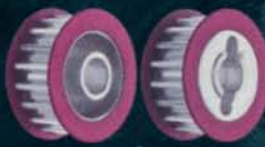
They're lightened, hard coated and precision cut. Available in 48P in 16T thru 28T, and 64P in 24T thru 38T. RRP 30XX (48P) and RRP 31XX (64P). Only \$5.25

### Stealth Spurs



These precision machined spur gears are super quiet. They're available in 48P in 60T thru 96T sizes, and fit any Associated or HPI electric car or truck. RRP 1860 thru RRP 1896.

### RS4 Nitro Small Aluminum Drive Pulleys



Hardened drive pulleys, sold in pairs. RRP 1538

### RC-10GT 48 Pitch Spurs



Precision machined from heat-resistant, super tough plastic, these spurs mesh flawlessly with our Clutchbells. Available in 63T thru 67T, RRP 2263 - RRP 2267.

### 48P Hard Nickel Plated Steel Pinions



These precision cut gears have an extremely hard coating that makes them really last. Available in 12T thru 35T. RRP 1012 - RRP 1035



## NOISY SPUR GEAR

I like to run my HPI RS4 in parking lots, but every once in a while, it starts to make weird, clicking noises. Sometimes the noise goes away; I can't figure it out. Is my belt skipping? I tried tightening my belt tensioner, but I still heard the noise.

Darren Moore

Must be our lucky day! Luckily for you, Darren, we think we can nail this one easily, since it's happened to all of us here at *Car Action* at one time or another. Most likely, the sound you hear is coming from the spur gear. Check between the gear teeth, and look for small pebbles and sand. You'll be surprised at how much noise a bit of debris wedged in between the teeth



of your spur gear can create! If it isn't that (but we're 99-percent sure that it is), we can think of only one other thing: if you use a set of MIP CVDs, check to make sure that the roll pin hasn't backed out of the bone's drive cup. Sometimes they back out a bit and rub up against something. More than likely, though, the cause is a small pebble in the spur gear.

Just a small pebble between the gear teeth can make a clicking noise. It can also chew up and ruin your gears. It's a good idea to clean the gear teeth with a small toothbrush after you've run in a dirty parking lot.

## TOOLBOX

### SuperKnife

This cool-looking knife is part pocketknife, part utility knife. The SuperKnife features anodized-aluminum and stainless-steel construction, and it accepts all standard utility blades (including contractor-grade). The knife is perfect for all sorts of RC applications from stripping wires to cutting fuel tubing and zip-ties. The knife has a built-in belt clip for convenient carrying, and it's small enough to easily fit into your pit box. Available in silver, black, blue, red and purple finishes.

**SuperKnife—item no. 901; \$24.95.**

**SuperKnife; distributed by RC Solutions (480) 609-7233; rc-solutions.com.**



### NEED HELP?

Send your "Troubleshooting" questions and comments to [troubleshooting@rcaraction.com](mailto:troubleshooting@rcaraction.com), or mail them to "Troubleshooting," c/o RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA.

### RC10-GT Steel Combo



Precision machined from solid steel, then hardened, this 65T spur and 15T bell combo will last and last. RRP 2365

### RC10-GT Hardened Steel Idler Gear



Cut from solid steel stock, this RC10-GT gear is lightened and hardened for super quiet precision and extra long life. Black tranny grease included. RRP 2213

### Associated Titanium Stealth Top Shaft



CNC Machined from solid titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512.

### RC-10GT Hardened Steel Clutchbells



These steel Clutch Bells are CNC machined from solid steel then the teeth are machined on. This makes the part stronger with less gear "run out". Available in 14T thru 20T, 22T and 24T. RRP 22XX

[www.robinsonracing.com](http://www.robinsonracing.com)

### Blue Lightened Slipper Kit



The rear plate is hard anodized and the front plate is color treated. The front plate holds the pad forcing it to slip on the rear plate. When pad wears, just flip it over for a new surface. RRP 1515 Associated

### Hardened Diff Gear



Hard anodized, precision CNC machined aluminum diff gear. RRP 1513 RC10-GT

### TC3 Ultra 48 Pitch Spurs



Precision machined from heat-resistant plastic, these spurs mesh flawlessly with our pinions. Available in even numbers from 70T thru 80T. RRP 1670 - RRP 1680.



**ROBINSON RACING PRODUCTS**

4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937







# TEAM ASSOCIATED RC10B4 STEALTH

by George M. Gonzalez

## RADIO CONTROL car action **CAR OF THE YEAR 2003**

**W**ith so many significant new cars released this year, choosing the Radio Control Car Action Car of the Year wasn't easy. We considered many new  $\frac{1}{8}$ -scale buggies,  $\frac{1}{10}$ -scale electric and nitro-powered touring cars and a slew of RTR vehicles as possible finalists, but the candidates quickly funneled down to one car we could all agree on: the Team Associated RC10B4 Stealth.





## WHY IT WON

### PERFORMANCE

The B4 won the tough Expert Mod Buggy class at the Cactus Classic on its first outing, and it has a consistent A-main presence in all levels of races from the Saturday afternoon club scene to annual off-road championships. Many dedicated Team Associated loyalists have reported faster lap times after retiring their B3 buggies and taking control of a B4, and you'll find strings of posts that praise the new Stealth buggy in the various RC chat rooms and on bulletin boards.

### MORE TUNING, LESS MAINTENANCE

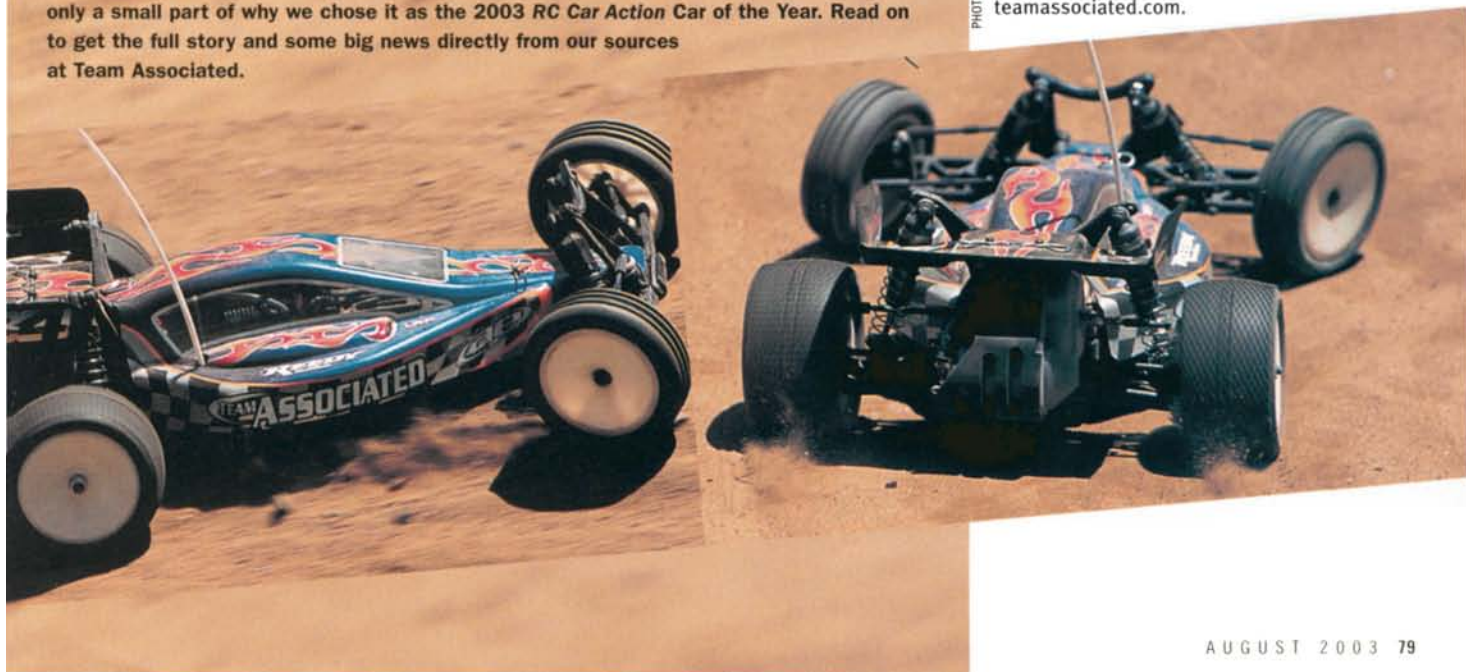
The B4 is much easier to build, tune and maintain than any of the previous RC10 buggies. Team Associated has always included excellent assembly instructions, and the B4's are the best to date. Wrenching on the B4 is a breeze because the front and rear suspension assemblies can be removed in minutes by loosening a few screws, and all of the car's major components are easy to access. The vertical ball studs are easy to reach, and you don't have to disassemble one component to be able to access hard-to-reach screws. The bombproof RC10GT ball diff and the large-surface-area, dual-pad slipper clutch ensure that the tranny will last a long time, and the differential will get plenty of track time between rebuilds.

### FACTORY SUPPORT

The B4 has been available for only a few short months, yet a bunch of factory and aftermarket hop-ups and tuning parts are already available for it. Team Associated has a huge distribution, which means that stock replacement parts are readily available at your local hobby shop and mail-order outlet. Setup information, building tips, accessory listings and customer support are only a click away at [teamassociated.com](http://teamassociated.com).

The B4 has been available only for a short time, but it has already caused quite a stir in electric 2WD off-road circles. It won the Expert Mod Buggy class at the Cactus Classic on its very first outing, and it finished in second place at the 2nd Annual Team Losi Off-Road Championships a few weeks later. The B4 buggy is definitely off to a good start, but that's only a small part of why we chose it as the 2003 RC Car Action Car of the Year. Read on to get the full story and some big news directly from our sources at Team Associated.

PHOTOS BY DERON NEBLETT AND PETE HALL

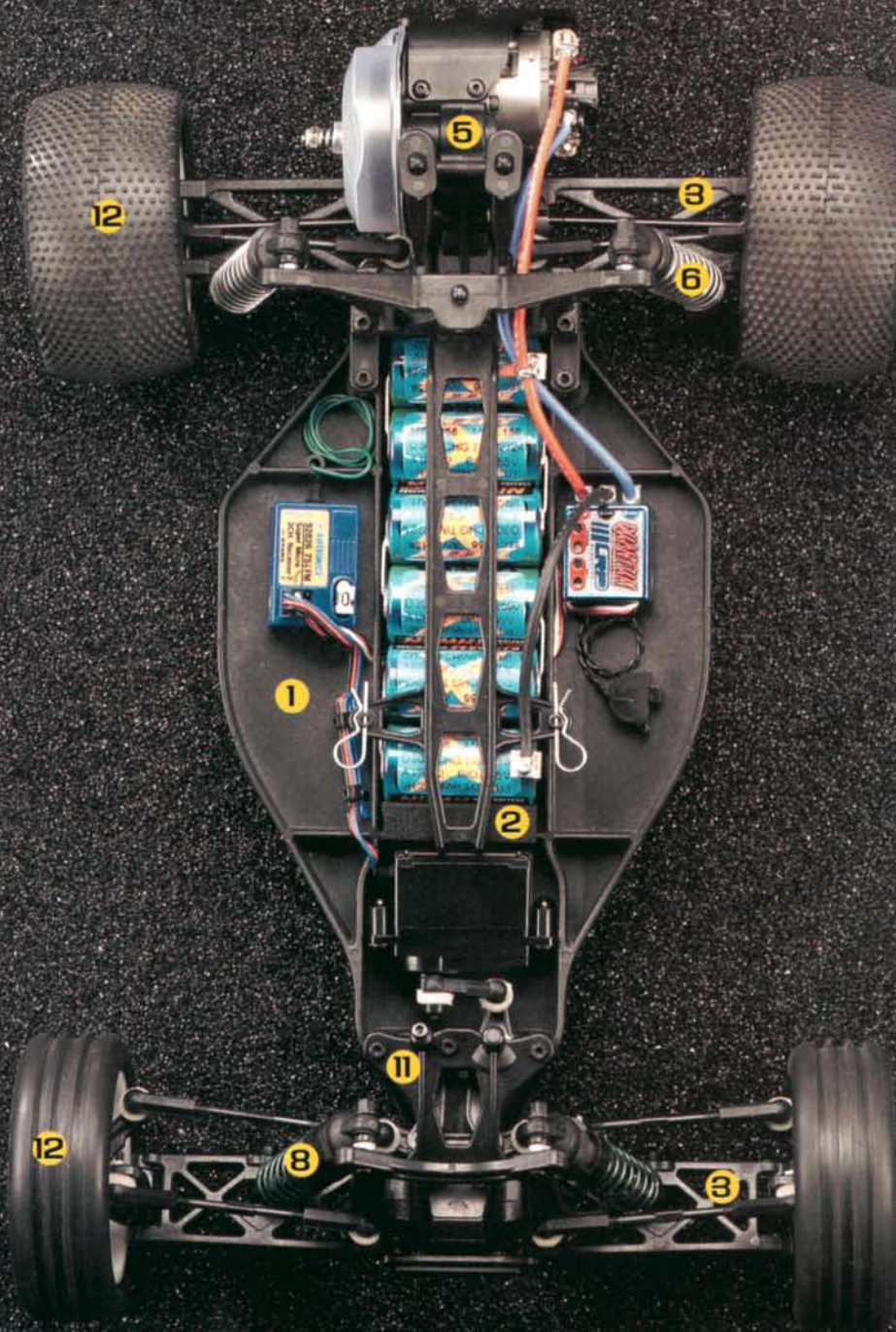
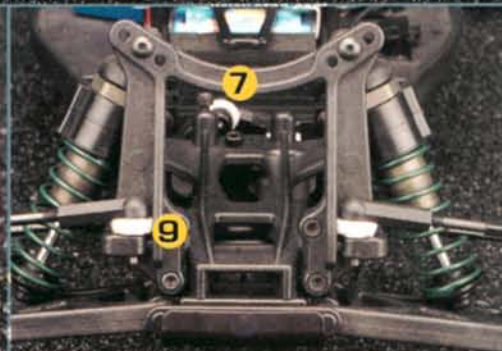






### B4 FEATURES

1. Composite-plastic chassis
2. Adjustable battery placement
3. Equal-length suspension arms
4. Captured hinge pins
5. Compact 2.6-reduction stealth tranny
6. Hard-coated Team shocks
7. Composite-plastic front shock tower
8. Low CG front shock mounting
9. Vertically mounted ball studs
10. Adjustable wing mounts
11. Integrated front bulkhead and upper deck
12. Pro-Line M3 Hoeshot and Wide-rib tires
13. Dual-disc slipper clutch
14. Trailing front axles





# THE RC10 FAMILY TREE

## THE ORIGINAL RC10: A LEGEND IS BORN

The original RC10 set the standard for 2WD off-road electric racing in the mid-'80s with its fully independent and tunable suspension, 6-gear transmission with an external ball differential and trademark gold-anodized-aluminum tub chassis.



Many variations of the original RC10 buggy were introduced throughout the late '80s and early '90s, including the first "Team" and "Worlds" cars, but other than giving birth to the 3-gear transmission, the RC10 underwent no sweeping changes until 1995.

## B2: THE FIRST STEALTH CAR

The B2 made its dramatic debut at the '95 IFMAR Worlds in Japan. Five of the 26 prototypes that had been sent to Japan made it to the A-main, and Matt Francis, who drove for Team Associated at that time, went on to TQ and win the event. The B2 represented several "firsts" for Team Associated: it was the first RC10 buggy that was designed using computer-assisted-design (CAD) software, the first official production buggy to carry the Stealth badge and the first Team Associated buggy to have a composite-plastic chassis.



## B3: THE WARBIRO GETS NEW ARTILLERY

The B3 was released in '98, and although it was based on the previous B2 design, it sported many new features that made it more competitive. It offered more tuning options than the B2, and it was the first RC10 buggy with Associated's "Quadra Symmetrical" suspension, which means that the front and rear suspension arms are equally long, and the front and rear inboard hinge pins are inline with each other. The B3 remains a popular buggy to this day; you picked it as the winner of the "Readers' Choice Awards" for favorite electric buggy.



## B4: THE NEW STEALTH CAR

The new B4 is a leaner and meaner Stealth buggy. It's designed to be as nimble on a smooth blue-groove track as it is on a bumpy track, thanks to the highly tunable suspension. Although performance was the number-one goal, the designers made the B4 much easier to build and maintain—an added bonus.



After collecting the hardware for Car of the Year at the RCX show, we pulled chief designer Cliff Lett aside to answer a few Q's about his experiences while designing the B4.



**Radio Control Car Action:** The B4 is an awesome buggy. Did you face any major challenges during the design process?

**Cliff Lett:** We encountered numerous design challenges in the B4's development, but our number-one goal was for it to have an extreme range of tunability. The B3 required a very aggressive driving style that did not cater to many of our customers or to the new generation of high-grip, blue-groove tracks. We wanted a car that could be tuned to handle like the B3 when necessary, but also be tunable enough for extreme high grip. This was not an easy task, but I think we got it right.

**Lett It B**

**RCCA:** Were there any unusual or funny stories that you can share about the prototype stages?

**CL:** Every project is filled with surprises, hurdles to overcome and funny situations. In the early days of the B4's development, several prototypes were being tested at SoCal Raceway. I think we had a total of 12 cars, including a standard B3 and a Triple-X. When we finished assembling all of them, we needed to paint the bodies. All we had around the shop was a can of red paint, so we painted all the cars red with black windows. After a few weeks, there were Web forum threads created that mentioned the mysterious red car being driven by Associated's team drivers at SoCal. No one could figure out which car we were driving, all because we only had one can of paint!

**RCCA:** The B4 has been a long time coming; is it everything you hoped it would be?

**CL:** As with any project that leaves this office and heads to production, I am never quite ready to give it the big OK without worrying about something. I have tried to train our engineers to be extremely detail-focused in everything they do. The payoff for this shows in products like the B4, where the entire project flows together. So far we are ecstatic about the car's performance and can't wait to apply everything we have learned to the T4.

**RCCA:** Do you think that the B4 will have an influence on the Team Associated racing teams' performance at the next IFMAR Worlds?

**CL:** I truly hope that the B4 helps our team perform well at the IFMAR Worlds in October. But regardless of which team is fortunate enough to win, I hope our customers will continue to enjoy the B4, and we are committed to providing them with the highest-performance, top-quality products in the future.

**RCCA:** How far off is a B4 Factory Team version?

**CL:** Associated typically releases the Team-level kits first, since they are the mid-level-price products. The Factory Team version is still several months away. However, the B4 RTR will be released in early August and is going to be a big surprise. But hey, George; don't tell anybody, OK? Yeah, right; like you're not gonna print this!

**NEWS FLASH**  
**TEAM ASSOCIATED**  
**B4 RTR**  
**IN THE WORKS**

You heard right—Team Associated will offer a ready-to-run (RTR) version of the B4! The B4 RTR will include Team Associated's newest Jaguar radio system, an LRP speedo and a Reedy mod motor.



# Kyosho Inferno MP-7.5 Sports ReadySet

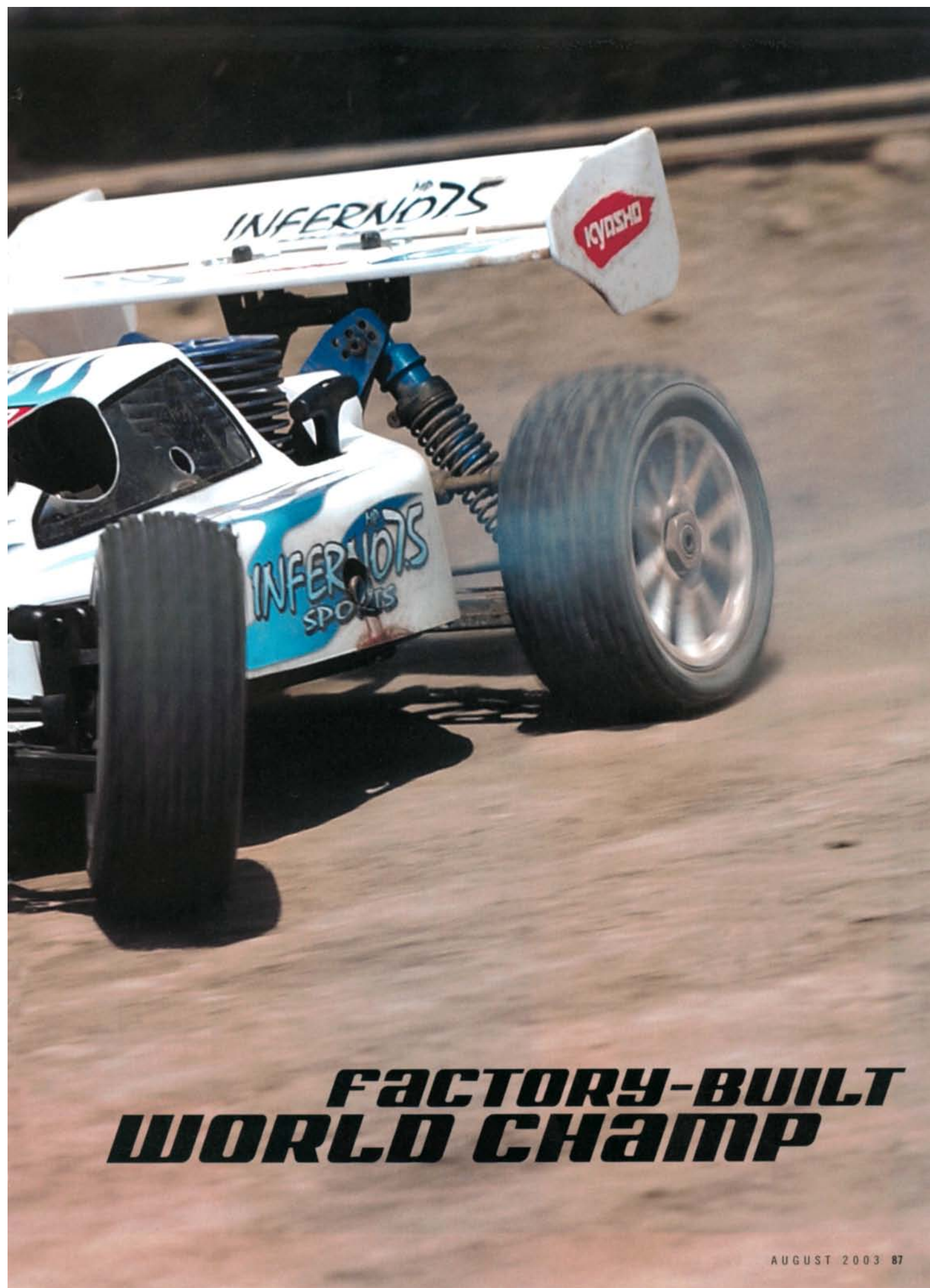


**THE READY-TO-RUN 1/8-SCALE BUGGY SCENE** is one of the fastest growing categories in RC; when *RC Nitro* magazine ran its "RTR 1/8-scale Buggy Guide" in the June 2003 issue, nine models were available from four manufacturers. Surprisingly, Kyosho was not among the four—despite the success of its Inferno-series buggies, which won the past six IFMAR World Championships.

What a difference a couple of months makes! Here we are with Kyosho's first ever RTR big buggy—the Kyosho Inferno MP-7.5 Sports ReadySet. This latest Inferno has the same suspension and chassis as the reigning world champ, but it comes factory-built with Kyosho radio gear and an all-new GX-21 engine. The Sports also includes a trimmed and decaled body and glued tires, making it truly ready to run—or should that be ready to race? With its track cred and reputation for high performance, the Inferno might be the best factory-built buggy yet. I aim to find out.

PHOTOS BY JASON SAMs





***FACTORY-BUILT  
WORLD CHAMP***



# track test

KYOSHO INFERNO MP-7.5  
SPORTS READYSET

INFERNO 7.5  
SPORTS

car action



The aluminum rear shock tower offers several shock-mounting options, and the bulkheads have the mounts you need to install optional swaybars. The buggy comes set up with 3 degrees of rear toe-in, but you can alter the toe angle with optional rear suspension-arm mounts.

Below: the front suspension arms are beefy and can take serious abuse. The blue-anodized steering drag link has three holes that allow steering to be adjusted. Check out the many shock-mounting options on the front aluminum shock tower, and note the stout, cast-aluminum steering knuckles.



Above: with countersunk screws, the chassis' underside is smooth. The large cutout under the flywheel allows you to use a starter box if you don't like yanking on the pull-starter. When properly tuned, the GX-21 starts with a couple of tugs. Look closely to see the small recesses that allow the front and rear diffs to be mounted lower on the chassis.

## DATA CENTER

**VEHICLE TYPE** 1/8-scale 4WD RTR  
nitro off-road buggy  
**BEST BUYER** First-time racers  
**KIT RATINGS** (poor, satisfactory, good, very good, excellent)  
**Instructions** Very good  
**Parts fit/finish** Excellent  
**Durability** Very good  
**Overall performance** Excellent

## SPECIFICATIONS

**MANUFACTURER** Kyosho  
**MODEL** Inferno MP-7.5 Sports ReadySet  
**DISTRIBUTOR** Great Planes  
**SCALE** 1/8  
**PRICE** \$479.99  
*Varies with dealer*

### DIMENSIONS

**Wheelbase (F/R)** 12.7/12.9 in.  
(323/328mm)  
**Width** 12.1 in. (307mm)

### WEIGHT

**Total** 112.9 oz. (3,200g)

### CHASSIS

**Type** 3mm channelled lower plate with front kick-up  
**Material** Aluminum

### DRIVE TRAIN

**Type** Shaft-driven, full-time 4WD  
**Primary** 13T/46T  
**Primary ratio** 3.54:1  
**Transmission/drive-train ratio** 3.3:1  
**Final drive ratio** 11.7:1  
**Drive shafts (F/R)** Dogbones  
**Differentials** O-ring-sealed bevel gear  
**Bearing type** Metal-shielded ball bearings

### SUSPENSION (F/R)

**Type** Independent double-wishbone  
**Shocks** Aluminum-body, oil-filled, coil-overs

### WHEELS

**Type** White, one-piece, 10-spoke

### TIRES

**Type** Mounted and glued step-pins

### ELECTRONICS

**Transmitter** Kyosho Perflex 27MHz AM  
**Servos** (steering/throttle) Kyosho KS 102 BK/KS 101 BK

### ENGINE AND ACCESSORIES

**Engine** Kyosho GX-21  
**Carburetor** 2-needle slide  
**Manifold** Bolt-on, 90-degree  
**Pipe** Dual-chamber  
**Fuel tank** 125cc

KYOSHO DOES AN  
EXCELLENT JOB OF  
BUILDING THE  
INFERNO  
READYSET



## KIT FEATURES

**CHASSIS.** The Sports' 3mm-thick, radiused lower chassis looks similar to the standard Inferno's chassis, but it's blue-anodized instead of gold-anodized. All of the screw holes are countersunk, and the chassis has 8 degrees of front kick-up. Large molded stone guards limit the amount of debris that can make its way into the chassis. The small recesses, or "blisters," that allow the front and rear diffs to sit as low as they can go on the chassis to lower CG are there, too. An anodized-aluminum radio tray houses the steering and throttle servos, and a molded box with separate compartments (and lids) stores the receiver and 4-cell battery holder. A large torque rod is bolted to the rear bulkhead and main chassis, and an anodized-aluminum front brace secures the front-suspension assembly and steering-bellcrank posts; both increase chassis rigidity. A molded transponder mount is also included.

**DRIVE TRAIN.** Like the full-race Inferno, the Sports has a low-CG drive train. The compact diff cases and bulkheads and the small ring gears allow the diffs to be mounted low on the chassis. All three diffs feature internal steel bevel and spider gears for increased strength. The front and rear diffs are closed with ring gears while the center diff has a plastic 46-tooth spur



A molded splashguard mounted on the center diff brace protects the brakes from getting doused with spilled fuel. The steering- and throttle-servo linkages are correctly installed at the factory.

gear. The diffs are grease-filled at the factory, but the internal rubber O-ring seals allow you to fill them with silicone diff fluid. Thick steel dog-bones transfer the power to the diffs and to the front and rear wheels, and the entire drive train spins on shielded ball bearings. A dual-disc brake system with 2mm-thick steel rotors and brake pads with rubber shoes provides the stopping power. A molded disc-brake holder mounted on the chassis under the brake system has small tracks for each rotor to prevent them from vibrating. Additionally, a molded splashguard mounted on the aluminum center diff brace prevents fuel from spilling onto the brake rotors and calipers during quick pit stops.

**SUSPENSION AND STEERING.** Blue-anodized, aluminum-body shocks with polished-steel shock shafts provide the damping. The shocks have double silicone seals and rubber diaphragms, and the pistons are secured on the shock shafts with locknuts (for extra security and easy piston changes). The shocks are attached to 3mm-thick anodized-aluminum shock towers. The front tower has four shock-mounting options; the rear has six, but it also has several mounting options for the rear camber link to alter the buggy's roll characteristics. The long, thick, front and rear suspension arms have two shock-mounting options apiece, and setscrews allow suspension-arm droop to be adjusted. The suspension arms pivot on thick steel hinge pins that are captured by separate arm mounts. The inner, blue-anodized-aluminum suspension-arm mounts are fixed; you can adjust the molded, outer, suspension-arm mounts to two front caster angles and three rear toe-in angles.

Stout, cast-aluminum steering knuckles pivot on bushings inside the hub carriers. The rear hub carriers have optional mounting holes for the lower hinge pins and the upper links; you can raise or lower the hubs without affecting the suspension geometry. Spacers on the outer hinge pins allow you to move the rear hub carriers forward or rearward to make minor wheelbase adjustments. The bushed, dual-bellcrank steering system pivots smoothly on aluminum posts. A heavy-duty adjustable servo-saver is built into the right bellcrank, and the anodized-aluminum drag link has three steering-link mounting positions, so you can alter steering characteristics. You can adjust front and rear camber and front toe-in and toe-out, but you have to remove one of the links to adjust the rod length.

**ENGINE AND ACCESSORIES.** The Sports is powered by Kyosho's new GX-21 pull-start, rear-exhaust engine; it features a 2-needle slide carb, a machined connecting rod, a 3-port sleeve and a large, blue-anodized 9-fin cooling head. To help produce a wider power band, a 90-degree bolt-on header is attached to a dual-chamber tuned pipe with a silicone coupler. The 125cc flip-top tank has an internal filter and baffles to prevent the fuel from splashing around. In addition, a cap-mounted pressure tap helps to prevent the fuel from foaming. The tank also has a fuel run-off that directs spilled fuel through a tube and out through the bottom of the chassis. The throttle and brake linkages are installed perfectly at the factory. The brake bias is exactly how I like it: the rear wheels have most of the stopping power.

**BODY, WHEELS AND TIRES.** If you're not into painting bodies, you'll appreciate the Sports' racy, factory-trimmed and decaled shell. It's painted white and decked out with blue-flame decals, and access holes for the fuel tank and the heat-sink head have been cut for you.

The tires come glued to white, 10-spoke rims, and the medium-compound tires' tall pins offer good traction on most off-road surfaces; unfortunately, there aren't any supportive foam inserts. Two body clips secure the wing, which sits on adjustable mounts; you can select from three wing angles to adjust downforce.

## ELECTRONICS & ACCESSORIES

### KYOSHO PERFEX RADIO SYSTEM

The Futaba-built Kyosho Perfix radio is a simple 2-channel, 27MHz, AM system with throttle- and steering-trim knobs, servo-reversing switches and a welcome steering dual-rate function. The radio also features a red LED power indicator and a charging jack if you want to use rechargeable batteries. Although it's basic, the system is reliable and has a long signal range.

### KYOSHO KS 101 BK THROTTLE/BRAKE AND KS 102 BK STEERING SERVOS

When I tested the Sports, I was instantly aware of the steering servo's power and was glad Kyosho hadn't installed a wheezy "standard" servo like those we find in many other RTR buggies. Kyosho claims 78 oz.-in. of steering-servo torque and 53 oz.-in. for the throttle servo, which provided solid braking.

Kyosho includes a four-way wrench (10mm, 8mm, 7mm, 5.5mm), a wheel wrench and four Allen wrenches with the Sports ReadySet.

### YOU'LL NEED

- 12 AA cells
- Glow igniter
- Fuel





## PERFORMANCE



THE INFERNO'S KS 102 BK SERVO HAD PLENTY OF TORQUE TO CRANK THE WHEELS

The Sports' GX-21 engine started on the first pull and immediately settled into a steady idle. I ran a few idling tanks of fuel through it to begin break-in and then ran the car on my street for a few more tanks to complete the job. After five or six tanks, I leaned out the bottom- and top-end needles to give the car extra rip. After fine-tuning the engine's performance, went to Hot Rod Hobbies in Saugus, CA, where once again, the GX-21 started effortlessly.

### LIKES

- The GX-21 engine is a gem.
- Exceptional handling.
- Roomy, easy-to-access receiver and battery box.
- High-torque steering servo.

Right off the bat, I noticed how well the Sports steered. The KS 102 BK servo had plenty of torque to crank the wheels, regardless of the load. The track has very tight S-turns that required a slight tap on the brakes, but I didn't have any problems with the nimble Sports. The two vented-steel rotors brought the big buggy to a stop quickly enough to help me avoid overshooting the corners.

The suspension soaked up the bumps exceptionally well but allowed the chassis to slap the ground on landing after some of the bigger jumps. I bottomed the chassis hard enough to bend one of the rear shock shafts; if you plan

a lot of air time, use stiffer springs and thicker shock oil.

After running through a few tanks at the track, I decided to run the car in an open area to see just how much spank the engine had. For high-speed runs, I leaned out the top end a little more. The buggy was a little soft down low, but it shone when it got up to its top speed of about 45mph. I inspected it after finishing my tests and saw that the plastic spur gear already showed signs of wear. It should hold up for a few more tanks of fuel, but I'll replace it with Kyosho's optional steel gear.

### THE VERDICT

Kyosho is the only company that can claim six world titles (in addition to numerous national championships), so it's no surprise that the RTR version of the world champ Inferno MP-7.5 is an excellent buggy. It's easy to drive and can be fairly competitive right out of the box—if your skills match its handling. The high-torque steering servo is a very welcome addition, and it lets the Sports handle like an Inferno; all RTR buggies should include powerful steering servos. I give credit to the reliable GX-21 engine for being easy to tune and having a good range of power. The only thing missing is a steel spur gear; add that, and the Inferno MP-7.5 Sports will be as durable as its competition, and it will be the only RTR buggy that can claim a world-championship title.

### DISLIKES

- Tires don't have foam inserts.
- Plastic spur gear wears quickly.

### DuraTrax Red Alert nitro fuel

I used DuraTrax's Red Alert 20-percent-nitro racing fuel, and the GX-21 ran smoothly from tank to tank. According to DuraTrax, the fuel contains a blend of synthetic and castor oils that keep engine temps down without compromising performance.



TEST GEAR

### SOURCE GUIDE

**DURATRAX** distributed by Hobbico/Great Planes; [dura-trax.com](http://dura-trax.com).

**HOBBICO/GREAT PLANES MODEL DISTRIBUTORS** (217) 398-8970.

**KYOSHO** distributed by Hobbico/Great Planes; [kyosho.com](http://kyosho.com).

### THE COMPETITION

	BALL BEARINGS	FRONT AXLES	SPUR GEAR	ENGINE SIZE	SHOCKS	RADIO SYSTEM	INCL. GLOW IGNITER	PRICE	REVIEWED
DuraTrax Axis RTR	Metal-shielded	Universal-joint	Plastic	.21	Aluminum	Hitec Lynx	Yes	\$499	3/00
GS Racing Storm RTR	Metal-shielded	Universal-joint	Steel	.21	Aluminum	JR Racing XR3	No	\$560	11/01
Kyosho Inferno MP-7.5 Sports	Metal-shielded	Dogbone	Plastic	.21	Aluminum	Kyosho Perflex	No	\$479	8/03
OFNA Ultra LX Pro	Rubber-shielded	Universal-joint	Steel	.25	Threaded-aluminum	Airtronics Blazer Sport	Yes	\$320	3/03
XTM X-Terminator	Metal-shielded	Universal-joint	Steel	.247	Aluminum	Hitec Lynx Sport	No	\$499	1/03

\*Partial list; category is too large to include all competitive vehicles. All listed vehicles include 3mm aluminum chassis and painted bodies.







track  
test

1/10-SCALE NITRO by Peter Vieira

# Schumacher Fusion R12



PHOTOS BY PETE HALL





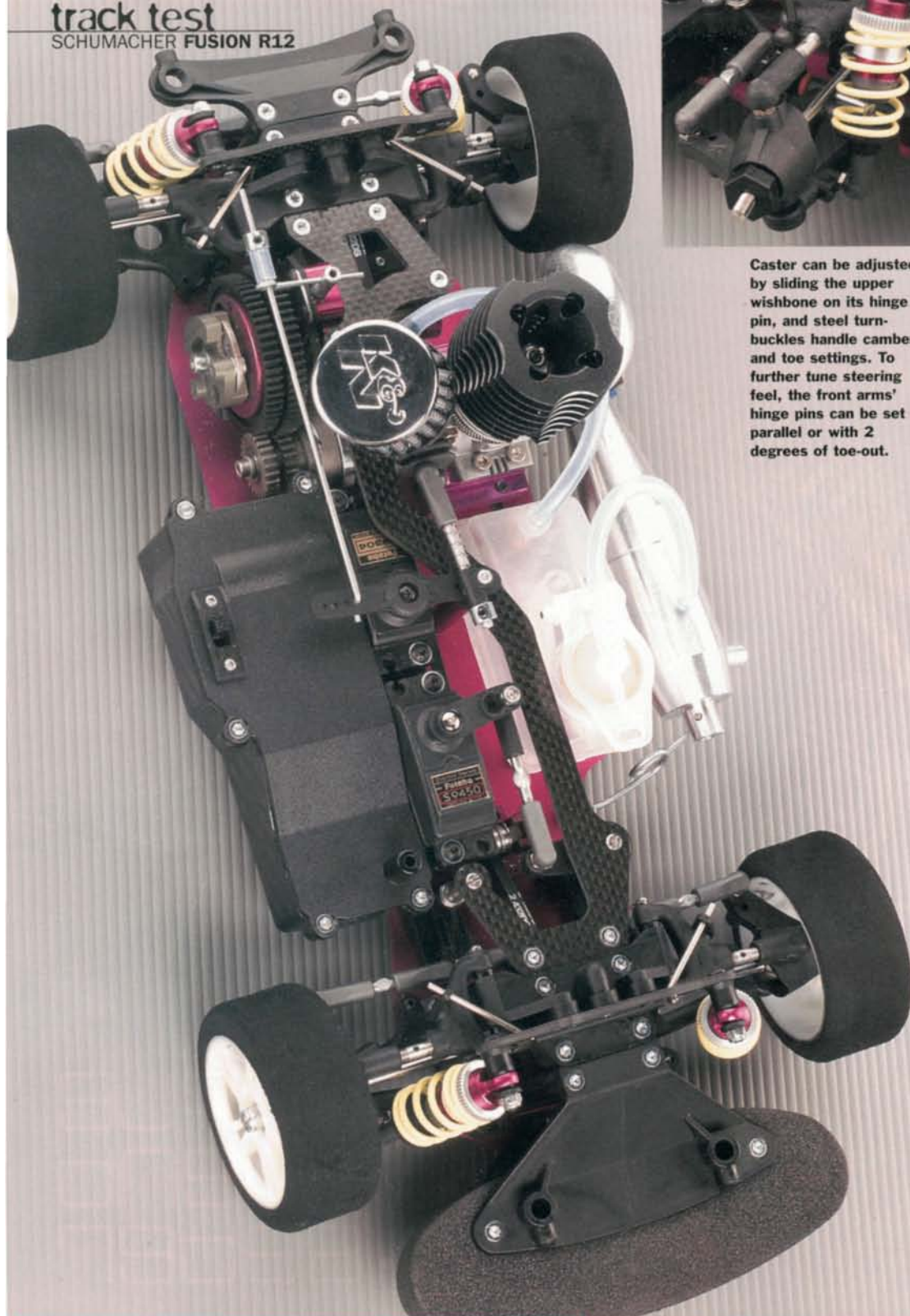
## PURPLE PAVEMENT EATER

**SCHUMACHER IS KNOWN FOR ITS COMPETITION** electric cars and over-powered nitro trucks, but a true nitro racing sedan has not been part of the lineup—until now, that is. The Fusion R12 pairs Schumacher's on-road prowess (proven by the success of the Axis and Mission series) with a unique drive-train layout to deliver an exciting and innovative nitro sedan that has been generating positive buzz since its A-main debut at the 2003 Winter Nats. Should we believe the hype?



## track test

SCHUMACHER FUSION R12



Caster can be adjusted by sliding the upper wishbone on its hinge pin, and steel turn-buckles handle camber and toe settings. To further tune steering feel, the front arms' hinge pins can be set parallel or with 2 degrees of toe-out.

### DATA CENTER

**VEHICLE TYPE** 4WD competition nitro touring car  
**BEST BUYER** Any competition-minded nitro touring fan  
**KIT RATINGS** (poor, satisfactory, good, very good, excellent)  
**Instructions** Very good  
**Parts fit and finish** Very good  
**Durability** Very good  
**Overall performance** Very good

### SPECIFICATIONS

**MANUFACTURER** Schumacher  
**MODEL** Fusion R12  
**SCALE** 1/10  
**PRICE** \$329 (varies with dealer)

#### DIMENSIONS

**Wheelbase** 10 to 10.2 in. (255 to 260mm)  
**Width** 7.7 in. (195mm)

#### WEIGHT

**Total, as tested** 57.4 oz. (1,626g)

#### CHASSIS

**Type** Double-deck plate  
**Material** 3mm aluminum (lower)/2.5mm graphite (upper)

#### DRIVE TRAIN

**Type** Dual-belt  
**Transmission ratio** 1.9:1  
**Final drive ratio** 11.59:1 (first gear), 8.95:1 (second gear)  
**Drive shafts** (F/R) Schumacher Blade with plastic shaft and steel stub-axle  
**Differentials** Ball type, 2.5 carbide balls  
**Bearing type** Metal-shielded ball bearings

#### SUSPENSION

**Type** (F/R) Lower A-arms w/upper wishbone  
**Shocks** Threaded aluminum-body

#### WHEELS

**Type** One-piece plastic dish

#### TIRES

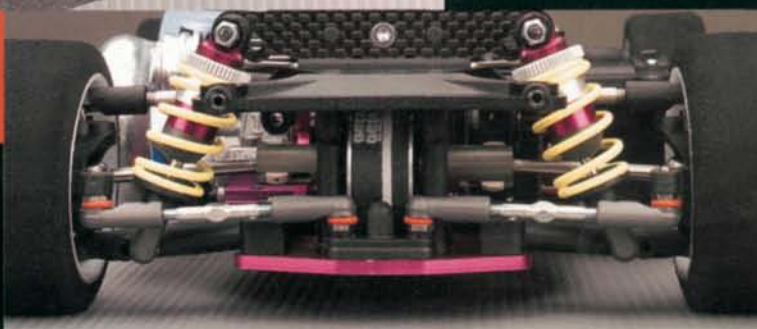
**Type** Rubber slick, blue-compound

#### ENGINE AND ACCESSORIES

**Engine** Not included  
**Clutch** 4-shoe  
**Manifold** Tubular, round-port  
**Pipe** Machined aluminum, dual chamber

THE R12 POPS OUT OF ITS WINDOW BOX WITH THE MAIN CHASSIS AND DRIVE-TRAIN PARTS INSTALLED.

Out of the box, the R12's ride height is a little tall (the full-size tires seen here also jack it up; it will sit lower once they're trued down to race diameter). Cranking the droop screws lowers the car but also reduces shock travel; shortening the shock shafts and ball cups is the hot setup. Note the dual belts riding on the diff pulley.





## KIT FEATURES

**CHASSIS.** The R12 is partially assembled by Schumacher and pops out of its window box with the main chassis and drive-train parts installed. The main chassis plate is made of 3mm, 6082 aluminum sheet and has a large flywheel opening as well as cutouts for the differentials, 2-speed gears and throttle servo that help these components sit lower in the chassis. A slender graphite top deck joins the front and rear gearboxes and aluminum layshaft bulkheads as it snakes between the servos, the fuel tank and the engine. The top deck is narrow, but the plate graphite is 2.5mm thick, and seven screws squeeze it against the chassis; the car is definitely stiff.

The R12's shifting mechanism is out in the open, and that makes it easy to adjust the dual drive dogs (circled). The one on the left is the shift dog; the one on the right is for engine braking. The hard-anodized carrier has a counterbalance to offset the weight of the dogs, and there's plenty of material around the load-bearing pivot pins.



A roomy radio box holds the receiver and its battery with room to spare and also encloses the switch harness. Five screws clamp the box shut, just about guaranteeing that dirt and fuel won't get in. The servos are attached to mounts molded on the box, so all the electronic gear can be removed as one unit; four screws hold everything in the chassis.

**DRIVE TRAIN.** Here's where the R12 is truly innovative. Most belt-driven nitro tourers use three belts to get power to the wheels. Schumacher gets the job done with two; a 7mm belt does the heavy work of connecting the layshaft pulley to the rear differential, then a 3.5mm belt wraps the front and rear differentials. The belt actually passes between the engine's flywheel and crankcase (thanks to a spacer machined into the flywheel), and a pair of adjustable pinch rollers sets the belt's tension just before it meets the front diff. As expected, a full set of ball bearings is standard.

Both differentials are ball units, and each holds 12, 2.5mm carbide diff balls. Schumacher's "blade" universal-joint axles take power out to the wheels. The "blade" is a plastic yoke that slips over the drive pins in the dogbone end of the axle. The yoke contacts the aluminum outdrives instead of the pins, and this reduces friction and wear.

The R12's 2-speed transmission is as unique as its two-belt drive system. The external shift mechanism uses a machined, hard-anodized aluminum carrier block to hold two crescent-shaped drive dogs: one for shifting, another for engine braking. The transmission's second drive dog engages later than the shift dog, and it stays engaged after you clip the throttle, thereby using the engine's drag as a supplemental brake. As with the shift dog, the brake dog's engagement point can be adjusted by means of a setscrew. You can lock out the engine-braking function entirely or set it so the engine brakes the car as long as the clutch is engaged.

The R12's primary braking force comes from a 2.5 vented-graphite brake rotor tucked behind the 2-speed. Steel caliper plates grab the rotor, and they're very well supported by an aluminum bulkhead. It should be a powerful setup; we'll see on the track.

**ENGINE AND ACCESSORIES.** The R12 doesn't include an engine, but everything you'll need to bolt in a rear-exhaust small-block is in the box. A specialized aluminum flywheel provides front drive-belt clearance and holds a 4-shoe setup with a waist-style spring. The clutch bell is steel and is threaded for quick pinion changes. Thick, machined-aluminum engine mounts look as though they can handle anything short of a hemi, and a complete exhaust system with a round-port 180-degree manifold and an aluminum dual-chamber pipe is standard. I only wish the pipe had a pressure fitting; instead, the pressure line is simply forced into a hole in the pipe.

The R12's fuel tank has a forward-facing lid for fast fill-ups and a cap-mounted pressure fitting to reduce fuel foaming. It's a little bigger than the ROAR-required 75cc, though; to reduce the tank's volume, a "correction bung" is supplied and must be installed inside the tank.

**SUSPENSION AND STEERING.** Schumacher's well-proven lower A-arm/upper wishbone suspension is right at home on the R12. The upper arms use steel turnbuckles to set camber, and the arms can be slid up to 4mm for caster adjustments. Droop screws in the lower arms are used to set ride height, and the suspension-arm mounting blocks can be positioned for zero or 2 degrees of arm sweep-in (in the rear) or sweep-out (up front). Rear anti-squat is adjusted by stacking washers under the forward arm mount, and front and rear toe-in are adjustable via thick steel turnbuckles.

Threaded, aluminum-body shocks are mounted on the R12's short graphite shock towers. Preload is easily adjusted with knurled aluminum collars that use O-ring grippers to hold their settings. The shocks use bottom-loaded seals and foam inserts for volume compensation, and Schumacher's Vari-Tune pistons permit damping adjustments without shock fluid changes. Each piston is actually two halves nested together. By rotating the upper half, more or fewer piston holes can be selected. It works, but it's a messy job, since you have to remove the seal cartridge to get at the pistons.

## BUILDING & SETUP TIPS

Schumacher assembles the drive train on the chassis for you, and the rest of the build is very straightforward, thanks to the well-illustrated manual. All the building tips I could think of were already in there! The only things to watch out for are carburetor clearance and ride height. The carburetor body of the Picco XP engine I installed rubbed the top deck. I filed 1mm of clearance from the parts for some wiggle room. As for ride height, I suggest you shorten the shock shafts and ball cups as Schumacher's Paul Wynn does in this setup; it's the same one as he's using to dominate the Florida state series with his personal R12.

### PAUL WYNN'S R12 SETUP

	FRONT	REAR
Shock position (upper/lower)	2/1	2/1
Camber-link position (inside/outside)	1/1	1/1
Tie-rod position	2	2
Arm mount toe setting (degrees)	0	0
Shock fluid (weight)	60	50
Springs	25 lb. (yellow)	25 lb. (yellow)
Piston holes	2	2
Droop	1mm	2mm
Roll bar	U2245	U2245
Caster/anti-squat (degrees)	7.5	0
Toe-in (degrees)	0	3
Ride height	5mm	5.5mm
Camber (degrees)	2	2

### MODIFICATIONS

- > Shock shafts and ball cups shortened 2.5mm.
- > Rear lower arm-mount height increased 2mm to raise roll center.

### YOU'LL NEED

- Transmitter and receiver
- Steering and throttle servos
- 200mm body
- .12 to .15 small-block, rear-exhaust, bump-start engine
- Fuel
- Starter box
- Tire glue

### FACTORY OPTIONS\*

- Tuning spring set—item no. U1921
- Quick-release caster clips—U2251
- Alloy seal cartridges (pair)—U1818
- Steel drive shafts (pair)—U2151
- Purple aluminum parts:
  - > diff mounts—U2462
  - > hub carriers (pair)—U2163
  - > upper arm mount—U2626

\*Partial listing, more options available



**BODY, WHEELS AND TIRES.** Like most competition sedans, the Fusion R12 does not include a body. I tested the car with a Protoform Dodge Stratus 2.1 body, but Schumacher supplied a Frewer DTM Touring shell for photos—looks good! Wheels and tires are included with the R12; you get white dish wheels and blue-compound slicks, which are very firm. I put them aside for

playing around and shod the R12 with TakeOff TF-series foams instead. The TF sneakers are a new line for Schumacher, and the foams will be offered in 31-, 34-, 37-, 40- and 43-shore compounds, and in 26, 28 and 30mm-wide versions. I installed 37-shore, 30mm rear tires and 40-shore, 26mm front tires as suggested by Schumacher.

TEST GEAR

**Paris-modified Novarossi TN12S1 engine**

This breathed-on .12 was rocket-quick in the Fusion R12, with super off-the-line snap and a pile of rpm for eating up the straights. Paris disassembles its engines, matches the pistons and sleeves by tolerance, and then refines the sleeve and



crank porting for maximum power. It ain't cheap, but if you want to have the most rip, the Paris treatment is worth it. I ran the engine on Maxy's fuel, as recommended by the Schumacher guys; it's the same fuel as the team uses. A K&N air filter completes the power package.

**Additional items used to complete the Schumacher Fusion R12**

**Futaba** 3PK transmitter and R203HF receiver

**Futaba** S9450 steering servo and S9304 throttle servo

**Maxy's** Pro Racing Fuel, 20% nitro

**TakeOff** TF-series foam tires

**Protoform** Dodge Stratus 2.1 body

**SOURCE GUIDE**

**FREWER** distributed by Schumacher USA.

**FUTABA** distributed by Hobbico (217) 398-8970; futaba-rc.com.

**K&N** air filter distributed by Kustom R/C Works (269) 637-5670.

**MAXY'S RACING FUEL** (305) 863-8898; maxysfuel.com.

**PARIS RACING** (909) 465-1189; parisracing.com.

**PROTOFORM INC.** distributed by Pro-Line (909) 849-9781; pro-lineracing.com.

**SCHUMACHER USA** (813) 889-9691; racing-cars.com.

**TAKEOFF** distributed by Schumacher USA.

# PERFORMANCE

The Fusion made its first run at RC Madness for a trip around the boards of the newly expanded, freshly paved asphalt track. I expected the modified Novarossi engine to be high-strung and finicky to tune, since it's a pro-caliber race engine and all, but it popped to life with a quick buzz on the starter box and broke in like a sport engine. It sure didn't behave like a sport engine on the track, though; if the R12 accelerated any more quickly, it would need a wheelie bar. Hands-off launches were straight and true, and the R12 was very stable under power. The 2-speed tranny helped deliver track-searing speed and shifted almost imperceptibly into second gear; it was so slick that I had to double-check to make sure that it was shifting! While I checked the shift point, I also tried the engine-braking feature. I can't say I felt it working, regardless of the setting I used. As the manual notes, the engine braking works only as long as the clutch is engaged. I think the clutch was simply disengaging too quickly for the engine braking to be apparent.

Not that I was worried about extra braking. As expected, the R12's graphite rotor and well-supported steel caliper provided all the power needed for late braking into corners. The brakes were finely controllable all the way to lockup, and after one readjustment to compensate for the parts' wearing in, the brake action stayed consistent from tank to tank.

I built the car using Paul Wynn's setup; it does a good job of bringing the car down to racing ride height. The front and rear swaybars helped minimize body roll, but the back tended to wander a little. If I clipped the throttle entering a turn, the R12 oversteered until I gave it a blip of throttle to reel the rear end back into line. When I pitted for fuel, I dialed out 1/2 degree of rear camber to get more tread on the ground, and that helped the back end stick better.

## LIKES

- Slick-shifting 2-speed transmission.
- Rock-solid straight-line stability.
- Low-friction drive train.
- Electronics are easy to remove for cleaning and belt access.

## THE VERDICT

With its 2-belt drive system, wishbone suspension and external 2-speed/engine-braking mechanism, the Fusion R12 is arguably the most unconventional nitro touring car available. It's also as capable as the best nitro touring cars available, based on my experience with it. The transmission snicks into gear seamlessly, the belt drive pumps power to the wheels effectively, and the suspension does its thing to keep the tires hooked up well. The R12 reacts well to the tuning tweaks you'll make to get the last tenths off your lap times, and based on testing and experience with Schumacher cars that share some of its suspension parts, the car can take a pretty good hit and still finish the race. Add the Fusion R12 to your test-drive list; you don't want to buy a new car until you wheel this one.

## DISLIKES

- Five screws must be removed to get at the receiver and battery.
- Some engines may rub the top deck.
- No pressure fitting on the pipe.
- Low ride-height settings remove much of the shocks' travel.

## THE COMPETITION

	CHASSIS*	DRIVE TRAIN	DIFFS	DRIVE AXLES	2-SPEED	SUSPENSION	BODY	TIRES	PRICE**	REVIEWED
Associated Nitro TC3 Team	2.5mm	Shaft	Ball	MIP CVD	Clutch type	Pivot ball	Not incl.	Rubber	\$269	5/02
Kyosho V-One RR	3mm	3-belt	Gear	Universal joint	Finger type	Pivot ball	Stratus	Foam	\$399	9/01 (RC Nitro)
Mugen MTX-3	3.2mm	3-belt	Gear	Dogbones	Clutch type	Pivot ball	Not incl.	Foam	\$369	4/03
GS Racing Vision Pro	4mm	3-belt	Gear	Universal joint	Clutch type	Pivot ball	Stratus	Foam	\$309	12/02 (RC Nitro)
Schumacher Fusion R12	3mm	2-belt	Ball	CV type	Finger type	Wishbone	Not incl.	Rubber	\$329	8/03
Trinity Reflex NT Team Only	4mm	3-belt	Gear	CV type	Clutch type	Pivot ball	Not incl.	Foam	\$459	6/03

Partial list; does not include all competitive vehicles. \*All include aluminum chassis. \*\*Price varies with dealer.









# CEN Fun Factor Mini Cooper



# NITRO- BURNIN' BRIT BOX



**CEN'S FUN FACTOR CHASSIS LINE HAS SPAWNED A VARIETY OF MODELS,** including monster trucks, stadium trucks, buggies and rally cars. For the latest addition to its Fun Factor line, CEN has replicated the BMW Mini Cooper that was raced in the John Cooper Challenge series. Well, mostly replicated; though the Minis that compete in the Challenge race on famous roadcourses such as Silverstone, Donington Park and Rockingham, CEN's Mini is built to handle rally action as well as pavement. With its shaft-drive 4WD system, 2-speed tranny and lugged tires, it's ready for anything, and as the proud owner of a full-scale '02 Mini Cooper, I felt I was the ideal candidate to test CEN's version.





All of the screw holes are countersunk, and the sides of the chassis are deeply radiused to make it more rigid.

Check out the giant circular hubs! Like the rest of CEN's Fun Factor vehicles, the Cooper features an adjustable pivot-ball suspension. Rear tie rods allow toe-in adjustment, but the rods are difficult to reach.

CV-style universal-joint drive shafts spin the front wheels, and the bevel-gear diffs are packed with heavy grease at the factory to slow down the diff action.

## DATA CENTER

**VEHICLE TYPE** 1/10 nitro rally car  
**BEST BUYER** Drivers of all skill levels  
**KIT RATINGS** (poor, satisfactory, good, very good, excellent)  
**Instructions** Good  
**Parts fit/finish** Good  
**Durability** Excellent  
**Overall performance** Good

## SPECIFICATIONS

**MODEL** Fun Factor Mini Cooper  
**MANUFACTURER** CEN  
**SCALE** 1/10  
**PRICE** \$329 (varies with dealer)

### DIMENSIONS

**Wheelbase** 10.87 in. (267mm)  
**Width** 10.25 in. (260mm)  
**Length** 17.5 in. (444mm)

### WEIGHT

**Total, as tested** 5.5 lb. (2,410g)

### CHASSIS

**Type** 2-piece semi-tub  
**Material** Aluminum

### DRIVE TRAIN

**Type** Shaft-drive 4WD  
**Primary** 2-speed clutch bell/  
2-speed spur gear  
**Final drive ratio** 10.364 (first  
gear)/8.805 (second gear)  
**Drive shafts** (F/R) CV axles/  
dogbones  
**Differentials** Bevel gear  
**Bearing type** Bronze  
bushings/shielded ball bearings

### SUSPENSION

**Type** Pillow-ball  
**Damping** Plastic-body,  
oil-filled shocks

### WHEELS

**Type** One-piece, split-spoke  
white plastic

### TIRES

**Type** Rally lug with foam inserts

### ENGINE

**Engine** CEN NT-16  
**Carb** Dual-needle rotary  
**Starter** Pull-start  
**Exhaust** Aluminum manifold/  
dual-chamber composite pipe  
**Fuel tank** 75cc





## KIT FEATURES

**CHASSIS.** Like the rest of the Fun Factor series vehicles, the Mini features CEN's "Smart Chassis." The screw holes in the 2-piece, purple-anodized-aluminum chassis are completely countersunk, and the chassis features a separate nose plate that provides considerable front kick-up. The chassis' sides are flipped up to form a semi-tub that helps to keep the drive train clean and adds rigidity. A rather large receiver and battery box take up most of the real estate on the chassis' right side. On the purple-anodized-aluminum top deck, you'll find the vertically mounted steering servo and 75cc quick-fill fuel tank. An aluminum rear chassis brace bridges the gap between the rear bulkhead and the center drive-shaft block and also contributes to the chassis' rigidity.



The standard 2-speed tranny gets the Cooper rolling along at an impressive clip—CEN claims 45mph, which seems about right. A fiberglass disc brake slows the car.

**SUSPENSION AND STEERING.** The pivot-ball suspension allows front and rear camber and subtle width adjustments, and in the rear, toe links allow you to adjust rear toe-in. Out of the box, the Mini comes set up with excessive front toe-in and negative camber that allow the front wheels to tuck themselves in under the wheel wells when the body is installed. Simply raising the body and trimming the wheel wells slightly will provide enough front-wheel clearance and allow you to adjust toe-in and camber to suit track conditions. The upper and lower suspension arms pivot on steel screw-pins that are supported by aluminum pin braces. Overall, the suspension components look beefy, and they should be able to handle off-road abuse rather well.

The plastic-body, oil-filled shocks feature aluminum upper and lower caps, silicone seals and bladders and clip-on preload spacers. To prevent the front tires from rubbing on the body, metal sleeves are installed over the shock shafts to limit up-travel when the suspension is compressed. After raising the body, I removed the metal sleeves to allow full suspension travel. The shocks are attached to stout, purple-anodized-aluminum front and rear towers that have five upper shock-mounting positions, and the

**DRIVE TRAIN.** The Mini's shaft-drive 4WD system uses a "finger-type" 2-speed transmission. The gear shaft mates with the rear bevel-gear differential, and a long propeller shaft reaches out to the front diff. Hard-steel ring-and-pinion gears spin the diffs. The wheels are driven by steel CV axles up front and dogbones in the rear. The drive train spins smoothly on ball bearings, but the wheels have to make do with bronze bushings.

## CEN MINI COOPER VS. BMW MINI COOPER

Since I drive a full-size Mini Cooper, I thought a little full-scale vs. RC comparison was in order. Is there more similarity here than just the body lines?

### CEN MINI COOPER

4WD  
Independent suspension  
.16ci single-cylinder 2-stroke engine  
Top speed: about 40mph  
No cup holders  
Stick-on headlights  
Runs reliably  
Driver is a windbag  
Fun to drive

### BMW MINI COOPER

Front-wheel drive  
Independent suspension  
1.6-liter 4-cylinder, 4-stroke engine  
Top speed: almost 140mph  
Three cup holders  
Halogen headlights  
Always in the shop  
Driver protected by an airbag  
Fun to drive



lower arms have three, for a total of 15 possible shock-mounting positions. One of the bellcranks on the dual-bellcrank steering system has a built-in servo-saver. The bellcranks are equipped with bronze bushings, and they pivot on aluminum posts.

**ENGINE AND ACCESSORIES.** CEN's powerful, reliable NT-16 engine gets the Mini rolling at an impressive clip. The engine features an ABC piston and sleeve, sealed crankshaft bearings, a bushed connecting rod, a dual-needle rotary carb, an 8-fin, machined-aluminum cooling head, a single-element fuel filter and a robust pull-start mechanism. The exhaust is



CEN's pull-start NT-16 engine is a good little performer, with plenty of power and run-all-day reliability.

## ELECTRONICS & ACCESSORIES

**CEN MIRAGE III 27MHZ RADIO SYSTEM.** Like all of CEN's Fun Factor RTRs, the Cooper comes with CEN's Mirage III setup. It's a basic radio system with the usual steering and throttle trims and servo-reversing, and the steering dual-rate function is a bonus.

**CEN 82108 STEERING AND THROTTLE SERVOS.** These plastic-gear servos are included with all of CEN's RTRs. They may not be zippy-fast or powerful, but they're good for steering and throttle duties in a parking-lot fun vehicle such as the Mini.



### YOU'LL NEED

- Tire glue
- 12 AA cells for the transmitter and onboard electronics
- Glow igniter
- Fuel
- Fuel bottle

### FACTORY OPTIONS\*

- Rear universal swing-shaft set—Item no. FFS004
- 4x40mm hinge-pin set—FFS007
- 4x47mm hinge-pin set—FFS008
- Aluminum shock set—FFS011
- Adjustable tie-rod set—FFS021
- One-way front diff—FFS023
- Fun Factor full bearing set—FFS030

\*Partial list; more options are available.



directed through a large internal-diameter aluminum manifold and a dual-chamber composite tuned pipe. Teflon clutch shoes are attached to an aluminum flywheel, and the steel 2-speed clutch bell spins on ball bearings.

**BODY, WHEELS AND TIRES.** The Fun Factor chassis may be  $\frac{1}{10}$  scale, but the Mini body is definitely much larger—closer to  $\frac{1}{8}$  scale, I'd say. Compare it with some of the other supposedly  $\frac{1}{10}$ -scale Mini bodies.

Whatever its scale, the Fun Factor Mini body is a faithful representation of the full-scale car, and the factory-trimmed and -decaled body gets you rolling fast. Surprisingly, the medium-compound rally lugged tires are not glued to the white, split-spoke wheels at the factory. If they were, the Cooper would be 100 percent ready to run right out of the box. The tires do include foam inserts, and that's a bonus.

## PERFORMANCE

Shortly after I broke in the engine, I inadvertently tested the Mini's overall ruggedness when I forgot to install the antenna tube and left the antenna wire coiled up inside the radio box. I realized that something was wrong when the car suddenly took off out of control and headed straight down the middle of the street. I heard the tranny shift into second gear and watched the car hit the curb at the end of the cul-de-sac at what must have been 40mph! The Mini cartwheeled several times and was flung more than 20 feet through the air before it landed upside-down on my neighbor's lawn with the engine screaming at full throttle.

By the time I reached the car, the engine had flamed out and stalled. As I walked toward what I was certain would be a wreck, I was mentally making up excuses to explain why I needed another test Mini, but I discovered that it was in pretty good shape. The front CV drive shafts were badly bent, but I was able to straighten them with pliers and a little muscle, and I was out testing it again within minutes (with the antenna installed correctly—of course). This car is tough!

I was impressed by the CEN NT-16 engine. During break-in, it wasn't at all fussy, and it didn't take a lot of fine-tuning to get it to perform well. It accelerates very quickly, and the 2-speed tranny shifts positively and holds its settings well. Braking is equally impressive; the fiber-disc brake has enough power to lock up the wheels, but it's also very easy to modulate.

The Mini handles quite well on all sorts of terrain. On high-traction surfaces, it lifted its inside rear wheel during hard cornering, but it never felt as if it was about to roll over. Steering is

slow, however; this is especially noticeable when you try to make sharp corners—but letting off the gas or tapping the brakes before you enter the turns tightens the line. The Mini really comes alive

I WAS IMPRESSED BY THE CEN NT-16 ENGINE. IT DIDN'T TAKE A LOT OF FINE-TUNING TO GET IT TO PERFORM WELL.

on dirt, gravel and other loose surfaces on which you can do 4WD drifts in the corners and throw out all kinds of roost from the tires.

It handles very well on relatively smooth surfaces, but it's hairy on rough terrain. The limited suspension travel combined with the stiff springs makes for a rather bouncy ride. Fortunately, you aren't sitting inside this car, so getting it out of shape adds to the fun.

### DISLIKES

- Tires are not factory-glued.
- Limited suspension travel and body clearance in stock trim.

### THE VERDICT

I had a blast testing the Mini Cooper. It's fast and fun to drive, and I think that I settled any questions about durability when I plowed it into a curb at full speed. Add a reliable, easy-to-tune engine to the equation, and you have the makings of a great first nitro-powered car. I give the CEN Fun Factor Mini Cooper a big thumbs up, and I think that anyone who buys one will be well satisfied with its performance.

### SOURCE GUIDE

CEN (714) 792-1923; cenracing.com.

DYNAMITE BLUE THUNDER distributed by Horizon Hobby  
(800) 682-8948; duratrax.com.





# SNEAK >> PEEK

by the RC Car Action Team

# HPI RS4

## INSIDE HPI'S NEW TOP TOURERS

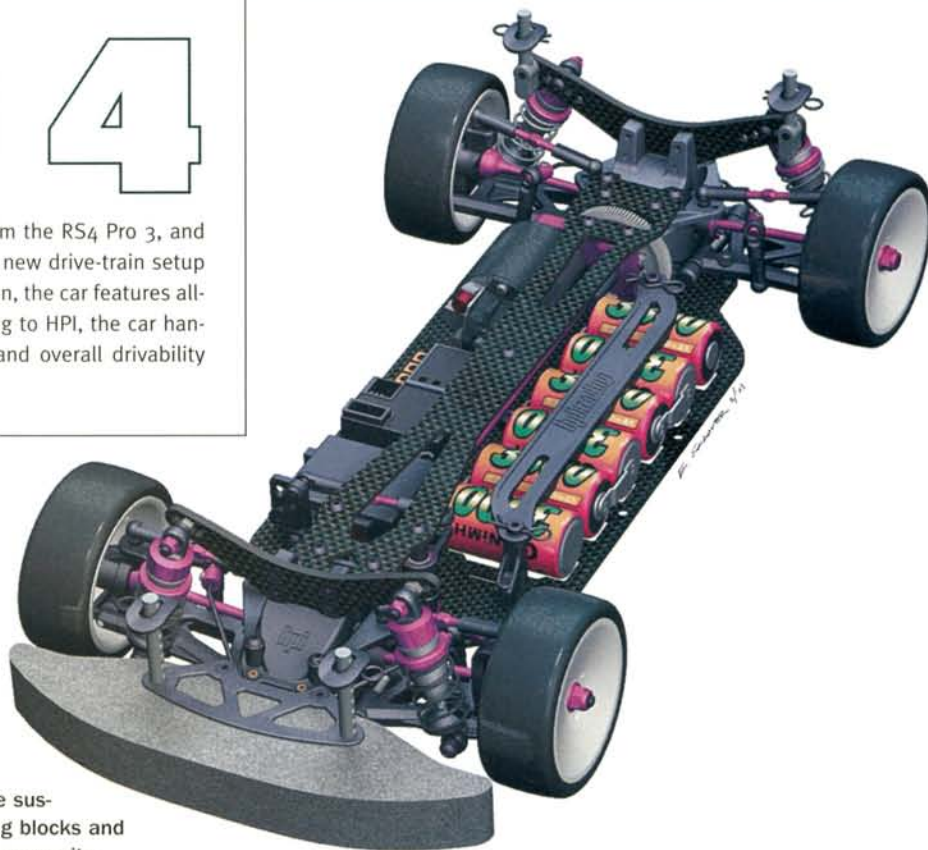
**T**wo of the most eagerly anticipated touring car releases have at last arrived: HPI Racing's new RS4 Pro 4 electric and R40 nitro touring cars. These early pictures and CAD drawings give us an initial view of what's under the hood, so to speak. We'll have production samples in the near future to put through their paces ourselves, but here's the info we have so far.

# RS4 PRO 4

HPI's new RS4 Pro 4 is a complete departure from the RS4 Pro 3, and what a departure it is. The car sports an entirely new drive-train setup for an electric HPI car: it has gone shaft! In addition, the car features all-new suspension and steering geometry. According to HPI, the car handles more consistently, and its tuning options and overall drivability have been dramatically improved.

### FAST FACTS

- > The car comes completely decked out in woven graphite, including the main chassis, upper deck, front and rear shock towers and steering plate.
- > In keeping with HPI's long-running purple theme, there's a complete set of purple titanium turnbuckles and purple MIP CVDs.
- > Lightweight, rigid, carbon-composite plastic parts are used throughout. Most notably, the suspension arms, uprights, hub carriers, steering blocks and gearboxes are made out of the lightweight composite.
- > A front one-way and a carbide-ball-equipped rear differential are standard.
- > The car has a whole host of aluminum parts that includes: threaded shocks (with bladders), main drive shaft, motor mount, spur-gear adapter and hex-clamp hubs (with adjustable track).
- > The 64-pitch spur and pinion gears are standard equipment.
- > Hex-head screws and fasteners are used throughout the chassis.
- > A precut urethane foam bumper helps protect that sweet-looking chassis.
- > The final drive ratio is 2.4375:1.
- > Ball bearings are used throughout (24 total).
- > The RS4 Pro 4 comes with a ball-bearing-supported steering assembly for smooth steering with reduced play. Included in



the steering assembly is a crank-style integrated servo-saver with adjustable tension.

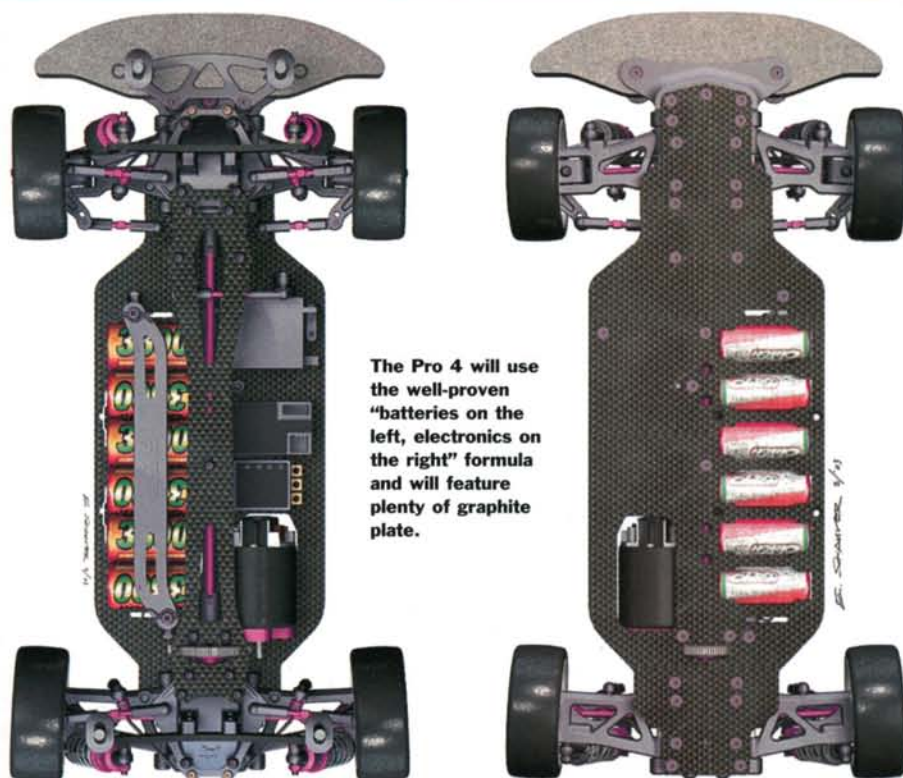
- > Ride-height and droop gauges are included to ensure accurate suspension adjustments.
- > The car's design allows you to make pivot-ball-block adjustments to help maintain precise suspension settings and to reduce the likelihood of your having misaligned suspension pins.
- > The RS4 Pro 4 uses 3mm inboard suspension shafts for strength and 2.5mm outboard shafts that weigh less and improve wheel clearance.
- > Setscrews retain the outboard suspension shafts for easier maintenance.
- > When the optional ballast weights are used, the car can take advantage of adjustable ballast positioning thanks to its light weight.



# PRO 4 & R40

## FRONT SUSPENSION

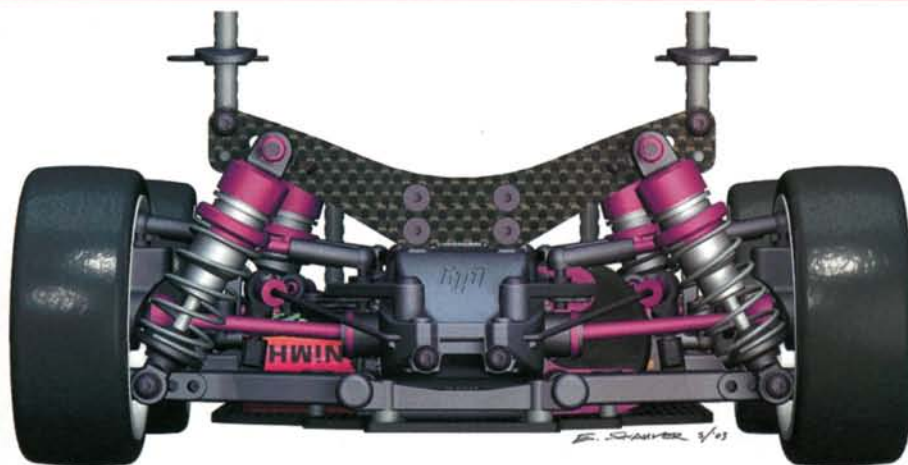
- > Adjustable camber
- > Adjustable caster (with included 0-, 2-, 4- and 6-degree uprights)
- > Adjustable toe
- > Variable Ackerman (using the steering plate's and adjustment holes)
- > Bump steer (adjustable using shims)
- > Adjustable roll center (by means of shims under the pivot blocks)
- > Vertical inner camber-link adjustment (by varying the mounting locations and height with shims; there are two inboard locations)
- > Adjustable downstops/suspension droop
- > Shock-mounting positions (three holes on the tower and two holes on the arm)
- > Anti-dive/kick-up
- > Anti-roll bar



The Pro 4 will use the well-proven "batteries on the left, electronics on the right" formula and will feature plenty of graphite plate.

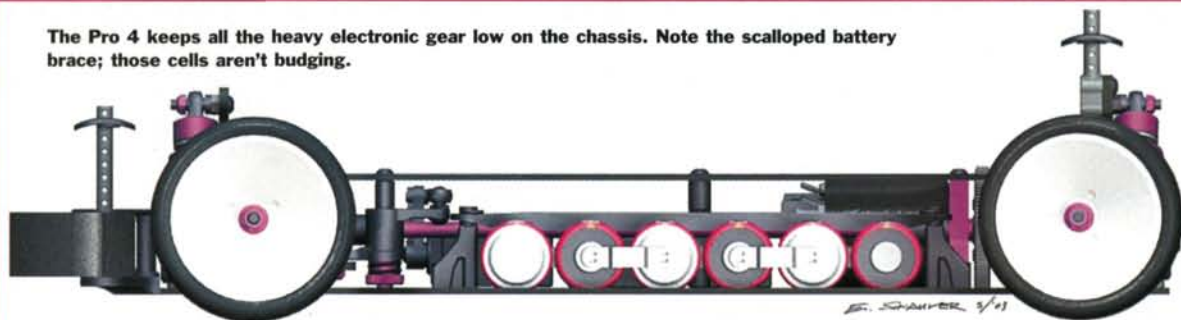
## REAR SUSPENSION

- > Adjustable camber
- > Adjustable toe (by means of the supplied 2.5-, 3- and 3.5-degree pivot blocks)
- > Adjustable roll center (using shims under the pivot blocks)
- > Vertical inner camber-link adjustment (by varying the mounting locations and height with shims; there are two inboard and two hub locations)
- > Adjustable downstops/suspension droop
- > Shock-mounting positions (four holes on the tower and three holes on the arm)
- > Anti-squat (adjusted with washers)
- > Adjustable wheelbase
- > Anti-roll bar



Vertically mounted ball studs make it easy to adjust roll center. Note how the chassis hangs beneath the arm mounts.

The Pro 4 keeps all the heavy electronic gear low on the chassis. Note the scalloped battery brace; those cells aren't budging.





# R40

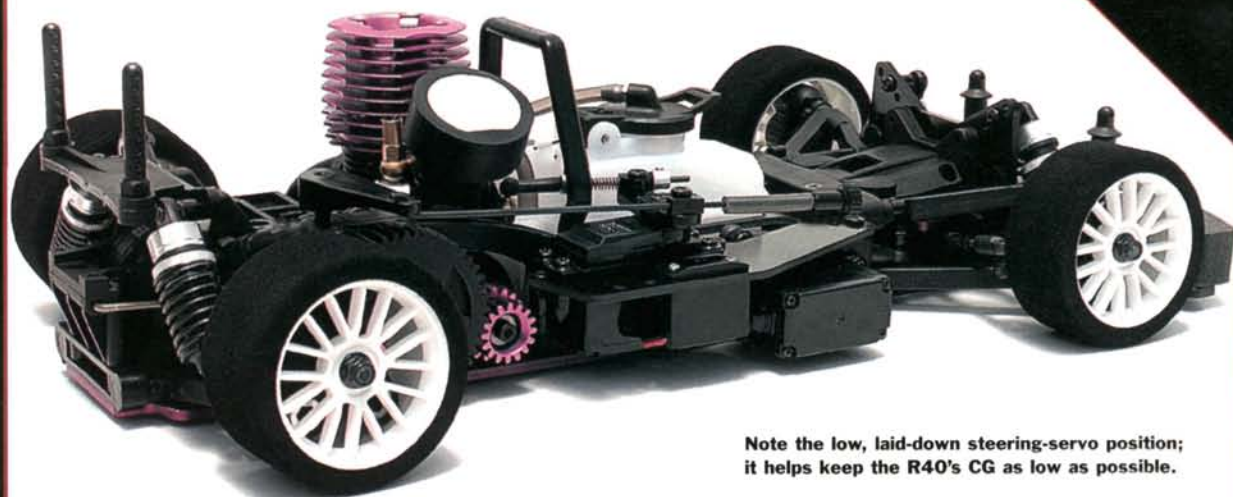
The new R40 is built for competition and has been designed to have a very low center of gravity (CG), and to be easy to work on and maintain and yet to offer the adjustability that racers look for in most "pro" nitro touring cars. This is HPI's most serious effort to date in the highly competitive nitro touring class.

## FAST FACTS

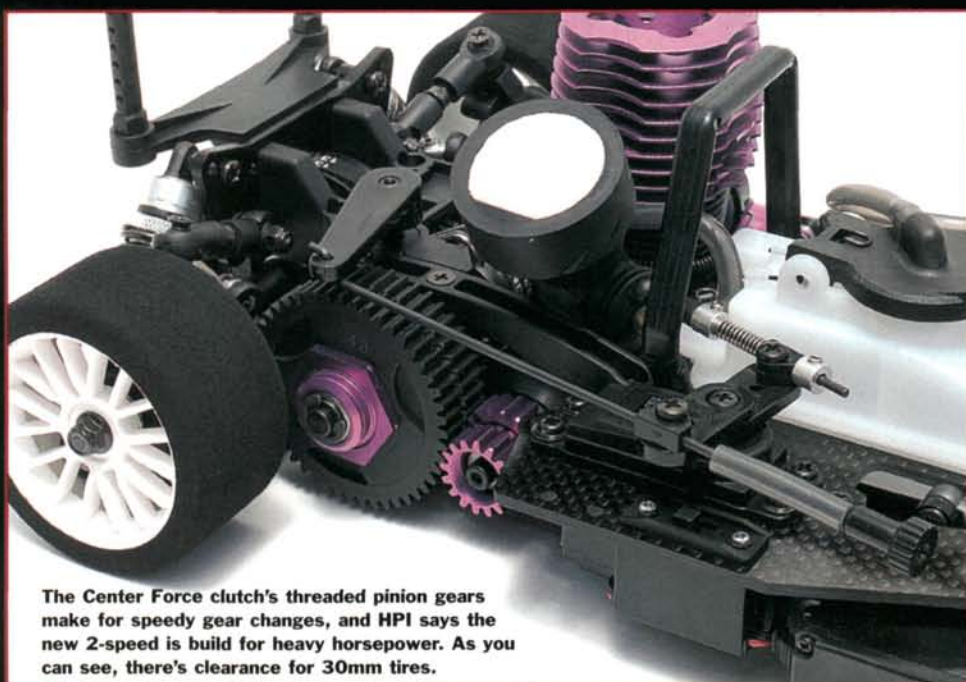
- > To help achieve the lowest possible CG, HPI designed the R40 to use commonly available 5-cell rechargeable receiver packs that can be mounted on the bottom of the chassis plate. This ensures that the battery weight (a heavy component) is as low as it can be. Standard 5-cell receiver packs are easily found at your local hobby shop; this car doesn't need a specialized battery that must be specially ordered or purpose-built.
- > The R40 uses a horizontal servo-mounting position. To lower the CG, the steering servo is mounted between the R40's woven-graphite upper and lower decks (instead of upside-down on the upper chassis deck).
- > The R40 uses an upper-bulkhead design for easy maintenance. This means that the diff and belt can be maintained by simply removing this upper bulkhead instead of by disassembling half the suspension. Both the front and rear use this design.
- > The fuel tank can be detached from the chassis in seconds by removing two clips. The tank is narrow enough to prevent fuel from sloshing away from the fuel pick-up during long, high-speed corners. Additionally, the fuel pick-up is in a deep, narrow section at the rear of the tank to ensure that you'll burn every drop of fuel before the engine stalls.
- > The lower chassis plate features HPI's signature purple anodizing, countersunk screw holes to maximize ground clearance and a narrow profile to prevent the sides of the chassis from scraping the ground and slowing the car during hard cornering.
- > A rear view of the chassis reveals suspension mounts that are independent of the bulkheads, so they will be easy to change. The benefit of having adjustable suspension mounts is that you can use them to raise and lower the chassis without disturbing the suspension geometry. Molded shocks with threaded preload adjusters will be standard equipment on the R40.
- > The 2-speed transmission features threaded clutch-bell gears that allow a change in gear ratio without having to remove the clutch bell. The spur gears are easily detached by removing a single E-clip.
- > HPI's Centax-type Center Force clutch is fully adjustable without any disassembly or engine removal. This type of clutch offers a distinct advantage over standard clutches because its engagement point can be matched to the engine's performance characteristics and track conditions.
- > According to HPI, the R40's transmission shifts smoothly even when running a 1.5hp+ small-block engine (or even a big-block, if you want to stuff one in there). The shift points are easily adjusted and remain much more stable than those on HPI's previous cam-type 2-speed.







Note the low, laid-down steering-servo position; it helps keep the R40's CG as low as possible.



The Center Force clutch's threaded pinion gears make for speedy gear changes, and HPI says the new 2-speed is build for heavy horsepower. As you can see, there's clearance for 30mm tires.

## R40 SPECS

- > Chassis length: 370mm
- > Width (F/R): 196/198mm
- > Tread (F/R): 170/168mm (adjustable)
- > Wheelbase: 255 to 260mm (adjustable)
- > Suspension (F/R): double-wishbone
- > Drive system: 3-belt, 4WD
- > Tires (F/R): 26/30mm HPI Pro foams
- > Not included: engine, manifold, muffler and body



All nitro cars have higher CGs than electrics, so their roll centers must be raised for best handling—hence the R40's high-rise rear camber links; they raise the car's roll center.



The R40's pivot-ball suspension uses suitably thick arms and is fully adjustable for camber, caster and toe (of course).

## SOURCE GUIDE

HPI RACING (949) 753-1099; [hpiracing.com](http://hpiracing.com).









▲ The crowd packed around the Steel Conflict arena—and this was during the intermission. During the fights, it was standing-room only!



▲ RC Car Action's resident trucker Kevin Hetmansi styles for the camera underneath his dream truck. This Hummer H2 was riding so high, you needed a step ladder to change the oil.



▲ Yes, this really is a truck jumping a plane, and believe it or not, there was plenty more of this type of action at the RCX dirt track.



# ALL THE HOTTEST RC ACTION!



▲ Pro drivers Matt Francis, Adam Drake, Brian Kinwald and Ryan Cavalieri put on a show at the dirt track. Next year, RCX might host a full-fledged race.



▲ Our new friend Marty Hansen traveled from New Zealand just to see RCX! How long does that trip take? Well, Marty was 20 years old when his flight left ....



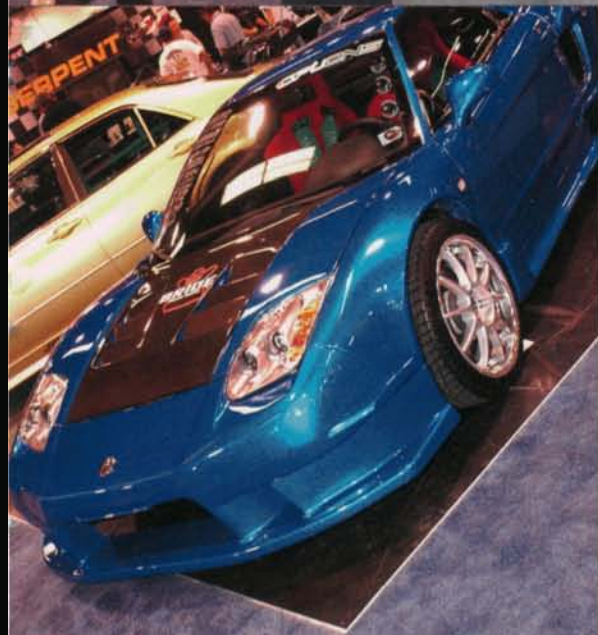
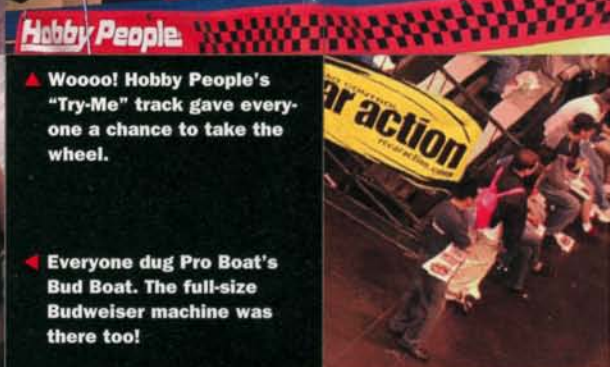
with people stopping at vendor booths to check out the latest products. Thousands poured through the aisles.



**Hobby People**

▲ Woooo! Hobby People's "Try-Me" track gave everyone a chance to take the wheel.

◀ Everyone dug Pro Boat's Bud Boat. The full-size Budweiser machine was there too!



▲ RCX not only featured the latest and greatest RC cars but also some of the hottest full-size street rides. Check out this bangin' Honda NSX.

▶ The lovely Joanna was on hand for Acer Racing to greet visitors.



# RCX-cellent!

## THE FIRST EVER RCX SHOW

in Anaheim, CA, was a record-breaker. Never before has there been such an infusion of RC energy! Thousands came out to see the action, and wherever you turned, it was WOW!—back-flipping  $\frac{1}{8}$ -scale cars, battling robots, free RC demos on the "Try-Me" track and boat pond, hotties in the booths and new products everywhere. All the players were there, including Hobbico, Horizon Hobby, XTM Racing, Hitec, Kyosho, Tamiya, OFNA, Traxxas, Pro-Line, and Novak—to name a few. You could even buy stuff from Hobby People right at the show, and from other vendors as well!

RCX is a collaboration of two highly successful companies: Air Age Media, the world's leading publisher of RC magazines, including *RC Car Action*, and Vision Entertainment, producer of some of the hottest action sports and lifestyle events, including Hot Import Nights and Fresh Tracks.

If you missed it, there's always next year. RCX will be back in SoCal April 24 to 25 with more tracks, demos, vendors, stuff and over-the-top action—don't miss it!





▼ Throughout the weekend, the crowd around the dirt track was four or five deep. Why? Three words: "back-flippin' buggies." That's all we need to say ....



▲ Joe Christensen of "The Dirt" in Hemet, CA, built this layout exclusively for RCX, and it was a giga-hit. Thanks again, Joe!

◀ Aeromodel's Jason Schulman demos his 3D flying skills.



◀ The Hacker guys made waves in the boat pond with their brushless-motor boats. They were rippin'!







▲ This tricked-out Saleen-style Ford Focus drew plenty of attention.

▶ Traxxas' Kent Poteet accepts the Truck of the Year award for the T-Maxx 2.5. Look for the complete story in the next issue!



◀ The Readers' Choice and Car and Truck of the Year awards were presented at RCX. It was like Oscar night for RC!



▲ The Pro-Line booth provided at least three reasons for visitors to linger.

▶ Here's a painting demo in progress. Linc from "The Mod Squad" proclaimed the paintwork "solid."



Champion boat driver Dave Villwock signs autographs alongside his impressive Miss Budweiser. Its top speed? More than 200mph! His top speed? About 100 autographs per hour.

Eager enthusiasts await the opening of the doors. Let us in! They just couldn't wait.







▲ Kyosho's cool-looking Mini-Z roadcourse had a Golden Gate Bridge theme. There was also an Overland track set up like an old mining camp!



◀ Nitro buggies and trucks easily launched 20 feet in the air, thanks to quarter-pipe-style jumps. Some drivers nearly parked their rides in the rafters!



◀ Before kicking off the Readers' Choice award ceremony, Air Age Media CEO and RCX founder Louis DeFrancesco greets the crowd and thanks everyone who helped make it happen.



◀ Kyosho president Aki Suzuki with his entourage.

▼ Robert Ondo is psyched; he just won a GS Racing Storm RTR! Garen Hagobian of GS (far right) handed over the goods.

# Hobby People

DISCOUNT HOBBY STORES

1-866-HOBBY-4-U







▲ Industry experts shared their insights with show goers at informative seminars. Here, Team Losi's Gary Keyes regales the crowd with his story about the time he caught a fish "this big."



◀ The RCX show wouldn't be complete without a full-size monster truck! We only barely managed to prevent Kevin from jumping in and mashing all the tricked-out street cars.



◀ RCX's own Ms. Becky gave away thousands of issues of *RC Car Action*, *RC Nitro*, *Model Airplane News*, *Backyard Flyer*, *RC Boat Modeler*, *Flight Journal* and more.



▲ What to look at ... the girls or the H2 ... the girls or the H2 ...?

◀ Let's git it on! The Steel Conflict delivered mechanized mayhem, and this dude announced the action.



▲ The hottest modified cars and trucks were there aplenty and consistently attracted huge crowds that especially liked the H2's chromed, lifted suspension!

▶ The DJ spins the vinyl at the dirt track. Ahh ... there's nothing like techno and tuned pipes to get the crowd moving!



## Don't miss RCX in 2004!

All the action returns to the Anaheim Convention Center next April 24 to 25. Stay tuned to *RC Car Action* and *RC Nitro* for all the details, and keep an eye on [rcexpo.com](http://rcexpo.com)!



◀ The Team Associated crew accepts the award for its B4 Stealth buggy—Car of the Year.



# BIG-TIRE

## 2003 MAXX TIRE GUIDE

by Kevin Hetmanski & John Howell





# BLOWOUT

**W**ithout a doubt, the Traxxas Maxx trucks are among the most popular monster trucks of all time. Traxxas made sure it pleased everyone by releasing the nitro-burnin' T-Maxx and electric E-Maxx. Well, thanks to both trucks' amazing popularity, there's no shortage of aftermarket tires to choose from for any application or terrain imaginable. But which one is right for your truck? Here's the definitive guide to help you find the latest and greatest Maxx tires.

PHOTOS BY PETE HALL & DERON NEEDLETT



# IMEX

The Imex guys have an extensive line of Maxx tires, as they should, since they've been in the business of making monster truck tires since the category first started. Imex recently expanded its line to include some very interesting oversize truck treads for the Maxx.



## J-HAWG

The J-Hawg is a good, all-around, general-use tire. It features "J"-profile lugs, hence the name. It comes with foam inserts and is available in two compounds: soft and medium.

Item nos.—7400 (soft), 7401 (medium); \$25/pair.



## SWAMP DAWG

Looking for something that works well in mud and real loamy conditions? If so, the Swamp Dawg could be the tire for you. Its tread has cleats in three sizes that help you gain maximum traction in the loose stuff. It comes with foam inserts and is available in two compounds: soft and medium.

Item nos.—7404 (soft), 7405 (medium); \$25/pair.



## CLAW DAWG

The Claw Dawg is a slightly modified version of the standard chevron-style tire. Its tread pattern features "gapped" lugs that flex more, thanks to cut-aways, so you gain more forward bite. It comes with foam inserts and is available in two compounds: soft and medium.

Item nos.—7408 (soft), 7409 (medium); \$25/pair.



## JUMBO MAXX CLAW DAWG

The JumboMaxx Claw Dawg is identical to the original Claw Dawg except for size. The JumboMaxx tires are much larger than the Claw Dawg's standard Maxx size. They come with foam inserts and are available only in medium compound.

Item no.—7411; \$35/pair.



## DIRT DAWG

The Dirt Dawg is a unique-looking tire. Best suited to backyard bashing, it works well in those loose-soil conditions when you need a self-cleaning tire. The Dirt Dawgs come with foam inserts and are available in two compounds: soft and medium.

Item nos.—7413 (soft), 7414 (medium); \$25/pair.



## RIB DAWG

SportMaxx owners will undoubtedly be interested in using this tire at the track. The new Rib Dawg is designed to be run on the front of your Maxx, so on high-bite tracks, it will help maximize your truck's steering. It comes with foam inserts and is available in two compounds: soft and medium.

Item nos.—7421 (soft), 7422 (medium); \$25/pair.



## JUMBO MAXX CHEVRON

The JumboMaxx chevron is an oversize standard chevron-lug tire. It's available only in medium compound and comes with foam inserts.

Item no.—7410; \$35/pair.



## JUMBO MAXX SWAMP DAWG

Identical in almost every way to the Swamp Dawg, the new JumboMaxx Swamp Dawg is the oversize version. It's available only in medium compound and comes with foam inserts.

Item no.—7412; \$35/pair.

## TRAIL DAWG



The Trail Dawg features an aggressive chevron pattern with channeled lugs to maximize forward traction. A good all-purpose tire, it comes with foam inserts and is available in two compounds: soft and medium.

Item nos.—7400 (soft), 7401 (medium); \$25/pair.

## JUMBO KONG



If you're looking to go big, then look no further! The Jumbo Kong tire is 8.5 inches tall, and it's currently the largest T-Maxx tire available. It comes with foam inserts and is available only in medium compound.

Item nos.—7423; \$50/pair, set of 4 tires w/rims and foam inserts 7500 (Sayville), 7501 (Diamond); \$129.





## BAJA

The Baja is similar to the J-Hawg, but its thin lugs flex more, and that gives the tire more forward bite. It comes with foam inserts and is available in two compounds: soft and medium.

Item nos.—7402 (soft), 7403 (medium); \$25/pair.



## ROAD DAWG

The Road Dawg is a good all-purpose street tire that features a realistic tread pattern. Thanks to the grooved street tread, the Road Dawg hooks up well on most untreated asphalt surfaces. It comes with foam inserts and is available in two compounds: soft and medium.

Item nos.—7406 (soft), 7407 (medium); \$25/pair.

# OFNA

## MT OVAL PIN

OFNA recently released some new tires that fit the T-Maxx. The rims for its own monster truck, the Dominator, also fit the T-Maxx.



The MT Oval Pin is OFNA's racing tire for hard-packed surfaces. If you run on medium- to hard-packed surfaces, the low-profile tread pattern of small oval pins will give you a ton of traction. Each pair of tires comes with foam inserts.

Unmounted—81158; \$25.95/pair.

## MT SPIKE



The MT Spike features angled rows of block "spikes" all over the tire. The rows also run in pairs (it's hard to explain; be sure to look closely at the photo). The design helps to stiffen the "row" of spikes so the tire can launch off the line harder. Each pair of tires comes with foam inserts.

Unmounted—81157; \$25.95/pair.

# WHICH WHEEL?

There are tons and tons of T-Maxx wheels on the market today in a variety of styles, colors and sizes. But which one is right for you? Below is a quick three-step guide to follow when choosing the right wheels for your new tires.

**SIZE.** First things first. Are you using larger tires such as Pro-Line's 40 Series or Imex's Jumbo Kong tires? If so, you'll have to use the specific wheel that fits that tire. Most manufacturers have package deals that combine oversize wheels and tires or offer pregglued versions.

**OFFSET.** Want to make your machine wider? Many wheel manufacturers offer wheels with offsets that allow you to widen the overall stance of a machine by simply bolting on a set of its wheels.

**MATERIAL.** Aluminum or plastic? If you plan to race your Maxx, we recommend you use plastic wheels. They're lighter than aluminum, and they help reduce the truck's unsprung weight; this allows your suspension to react faster. Aluminum wheels are better suited to people who want a great-looking show truck and those who want bulletproof wheels they can use over and over.



Check out this cross-section comparison of a standard-size T-Maxx tire/wheel combo and a 40 Series Pro-Line combo.

**BEADLOCKS.** Hate to glue your tires? If you don't want to mess around with gluing up your new set of tires, or if you want the option to reuse your wheels when the tires are worn out, check out Beadlocks. Stomper Hobbies offers a set of Maximizer Composite Beadlock wheels that will fit any standard T-Maxx tire.



Jumbo versus standard.

## MT NIK



The MT Nik features a very interesting tread pattern; it looks very much like a logo that you've probably got on your sneakers! The Nik is "chevron-esque," and its large lugs are sure to give good forward bite. Each pair of tires comes with foam inserts.

Unmounted—81156; \$25.95/pair.



# PRO-LINE

Pro-Line has recently made available pregled versions of some of the tires in its Maxx line. In addition to those, Pro-Line also offers its own oversize tires in the 40 Series. Pro-Line-specific wheels must be purchased if you buy the unmounted 40 Series tires. The 40 Series tires use a much taller and wider rim to better support the low-profile rubber. The tires deliver greater traction with less flex and sidewall deflection. Check out the cutaway photo in the "Which Wheel?" sidebar on page 141.



## 40 SERIES

The oversize Big Joe tire offers a tread surface that is 1-inch wider and has a 3/4-inch larger inner diameter than the typical monster-truck tire. Its aggressive block-pattern tread works well on most surfaces, so the Big Joe is a good all-purpose tire. It uses Pro-Line's soft M2 compound and comes with firm foam inserts.

Item no.—1103-00; \$33/pair.



## 40 SERIES ROAD RAGE

The 40 Series Maxx Road Rage tire features a realistic-looking street tread (sharing identical tread patterns with the standard-size Maxx Road Rage), and oversize foam inserts are included for maximum tire-carcass stiffness. This street tread is perfect for when you run your Maxx on unswept streets and parking lots.

Item no.—1104-00; \$33/pair.



## MAXX MASH-

The Maxx Masher features an aggressively channeled, chevron lug pattern that ensures great forward bite. This all-terrain tire is best used for backyard bashing. The tire is molded of Pro-Line's popular soft M2 compound, and foam inserts are included.

Pregled—1075-12 (standard offset)/1075-10 (0.5-inch offset); \$49/pair.

Unmounted—1075-00; \$29/pair.



## MAXX ROAD RAGE

The standard-size Maxx Road Rage tire features a realistic-looking street tread for all those road-goers. The tires come with oversize foam inserts for maximum tire-carcass stiffness. The Road Rage hooks up well on unswept streets and parking lots.

Pregled—1082-12 (standard offset)/1082-10 (0.5-inch offset); \$49/pair.

Unmounted—1082-00; \$29/pair.



## MAXX BOW

One of the most popular racing tires, Pro-Line's Maxx Bow Tie. This national and regional title-winning tire is best used on medium- to hard-packed surfaces; high-density foam inserts are included.

Item no.—1079-00; \$29/pair.



## MAXX

The Maxx Mulcher is a dual-purpose tire. It can be used for backyard bashing and is equally at home at the racetrack if you race on somewhat loamy track conditions. Like the other Pro-Line tires, it features a low-roll outer sidewall design.

Item no.—1085-00; \$29/pair.

## MAXX PADDLE



If you run your Maxx at the beach, on sand dunes, or even in the mud or snow, you'll want to look at this tire! The Maxx Paddle features 11 aggressively profiled paddles to help you sling sand, mud and snow. Redesigned foam inserts are included to provide the proper tire-carcass stiffness so the paddles won't flex.

Item no.—1084-00; \$29/pair.

# UNMOUNTED vs. PREGLUED

To glue or not to glue ... that is the question. Without a doubt, pregled tires are the hottest things to hit RC in quite some time. After noticing the increased popularity of RTR during the past few years, tire manufacturers now offer pregled, RTR tires, but at a price.

On average, pregled tires cost between \$12 to \$20 more per pair: Orion's are \$12 more, TRC tires are \$12.40 more pregled, and Pro-Line adds \$20. That may seem like a lot of money, but in reality, it isn't. Here's why: if you factor in the cost of the wheels (\$15 to \$16.50/pair) as well as the glue you'll need (\$5 to \$8), the pregled tires begin to look more like the bargain of the century. And let's face it: right behind rebuilding shocks, mounting and gluing tires has to be one of the most disliked jobs the average RC'er spends time doing.





# MAXX TIRE SPECIFICATIONS

	Suggested application	Compound (types available)	Weight (unmounted/mounted)	Diameter	Width	Sold unmounted only or both unmounted & mounted	Price per pair* (unmounted/mounted)
<b>IMEX</b>							
J-Hawg	All-purpose	Soft/medium	268g/323g	143mm	80mm	Unmounted only	\$25/—
Swamp Dawg	Loam/mud	Soft/medium	242g/297g	145mm	85mm	Unmounted only	\$25/—
Claw Dawg	Loam/mud	Soft/medium	248g/303g	144mm	86mm	Unmounted only	\$25/—
JumboMaxx Claw Dawg	Loam/mud	Soft/medium	419g/537g	160mm	118mm	Unmounted only	\$35/—
Dirt Dawg	Backyard	Soft/medium	267g/322g	133mm	83mm	Unmounted only	\$25/—
Rib Dawg	Racing	Soft/medium	132g/187g	141mm	71mm	Unmounted only	\$25/—
Baja	All-purpose	Soft/medium	202g/257g	142mm	85mm	Unmounted only	\$25/—
Road Dawg	Street	Soft/medium	269g/324g	139mm	80mm	Unmounted only	\$25/—
JumboMaxx Chevron	All-purpose	Soft/medium	433g/551g	162mm	118mm	Unmounted only	\$35/—
JumboMaxx Swamp Dawg	Loam/mud	Soft/medium	435g/553g	164mm	118mm	Unmounted only	\$35/—
Trail Dawg	All-purpose	Soft/medium	189g/244g	146mm	88mm	Unmounted only	\$25/—
Jumbo Kong	All-purpose	Soft/medium	588g/706g	216mm	126mm	Unmounted only	\$50/—
<b>OFNA</b>							
MT Nik	All-purpose	Medium	190g/245g	137mm	79mm	Unmounted only	\$25.95/—
MT Oval Pin	Racing	Medium	199g/254g	137mm	76mm	Unmounted only	\$25.95/—
MT Spike	Racing	Medium	187g/242g	137mm	32mm	Unmounted only	\$25.95/—
<b>PRO-LINE</b>							
Big Joe 40 Series	All-purpose	Medium	286g/364g	156mm	105mm	Unmounted only	\$33/—
Road Rage 40 Series	Street	Medium	188g/266g	137mm	86mm	Unmounted only	\$29/—
Maxx Masher	All-purpose	Medium	208g/263g	146mm	83mm	Both	\$29/49
Maxx Bow Tie	Racing	Medium	159g/214g	146mm	84mm	Unmounted only	\$29/—
Maxx Road Rage	Street	Medium	194g/249g	137mm	83mm	Both	\$29/\$49
Maxx Paddle	Sand/mud	Medium	178g/233g	156mm	85mm	Unmounted only	\$29/—
Maxx Mulcher	Backyard/racing	Medium	200g/255g	150mm	83mm	Unmounted only	\$29/—
<b>TEAM ORION</b>							
Streetsweeper	Street	Medium	185g/240g	141mm	83mm	Both	\$28/\$40
Meathook	All-purpose	Medium	192g/247g	144mm	82mm	Both	\$28/\$40
Redneck	All-purpose	Medium	224g/279g	151mm	86mm	Both	\$28/\$40
Dominator	Racing	Medium	169g/224g	143mm	83mm	Both	\$28/\$40
<b>TRAXXAS</b>							
SportTraxx	Racing	Soft	185g/240g	153mm	84mm	Unmounted only	\$29/—
<b>TRC OFF-ROAD</b>							
Park	Street	Medium	199g/254g	140mm	82mm	Both	\$29.19/\$41.59
Grass	Backyard	Medium	208g/263g	143mm	83mm	Both	\$29.19/\$41.59
Micro	Racing	Medium	181g/236g	145mm	80mm	Both	\$29.19/\$41.59
PaqMan	Racing	Medium	173g/228g	144mm	83mm	Both	\$29.19/\$41.59
Puller	All-purpose	Medium	229g/284g	152mm	82mm	Both	\$29.19/\$41.59

\*Prices vary with dealer. All tires include inserts.



# TEAM ORION

Team Orion offers its Fresh Kicks monster tires in pregloed and unmounted versions. The pregloed tires are available in standard and 0.5-inch offset and come mounted on Team Orion's chrome Revolver rims.



## STREETSWEEP-

The Streetsweeper tire is for street use only. Its tread features a grooved pattern that helps it hook up better on unswept surfaces (such as parking lots). The unmounted tires come with foam inserts.

Pregloed—76510 (standard offset)/76520 (0.5-inch offset); \$39.99/pair.

Unmounted—75510; \$27.99/pair.



## MEATHOOK

The Meathook has low-profile, channeled lugs that work well on most hard-packed surfaces and other high-traction areas. It's also a good all-purpose, general-use tire. The unmounted tires come with foam inserts.

Pregloed—76511 (standard offset)/76521 (0.5-inch offset); \$39.99/pair.

Unmounted—75511; \$27.99/pair.



## REDNECK

The Redneck has a modified chevron tread. Best used as a direct replacement for the stock tires, it gets great forward bite, thanks to the grooved lugs that allow the tire to flex. The unmounted tires come with foam inserts.

Pregloed—76512 (standard offset)/76522 (0.5-inch offset); \$39.99/pair.

Unmounted—75512; \$27.99/pair.



## DOMINATOR

The Dominator is the racing tire of the Fresh Kicks line. Its micro-pin tread is best used on high-bite off-road tracks or hard-packed surfaces. The unmounted tires come with foam inserts.

Pregloed—76513 (standard offset)/76523 (0.5-inch offset); \$39.99/pair.

Unmounted—75513; \$27.99/pair.

# GLUE 'EM UP GOOD!

Here are a few tips to follow when you glue your Maxx wheels and tires:

### DON'T SKIMP ON THE GLUE

When it comes to gluing T-Maxx tires, you'll want to make sure that you have plenty of tire glue on hand; there's a lot of surface area that you'll be working with!

### VENT THE RIMS

If your wheels don't have predrilled air holes, it's a good idea to drill two  $\frac{1}{8}$ -inch holes in the wheel; the holes should be opposite each other.

### PREPARE THE RIM'S TIRE-MOUNTING AREA

Manufacturers don't always strip the chrome plating off the bead section for you. If it's still on your rims, you'll get better adhesion if you remove the plating with a Dremel tool (equipped with a wire wheel) before you glue the tire to the wheel. If you use aluminum wheels, make sure that you scuff the entire bead with 600-grit sandpaper or a Scotch-Brite pad (again, this ensures better adhesion). After you've prepared the tire-mounting areas, wipe down the bead sections with alcohol or motor spray.

### CLEAN THE TIRE'S BEAD, TOO

Make sure that the tire's inside bead (the part that fits into the rim) has been properly cleaned as well. Tire manufacturers' molds sometimes leave mold-release-agent residue on the tire. The residue will come right off if you simply squirt motor spray on a paper towel and use it to wipe the inside of the tire along the bead.

### CHECK THE TREAD DIRECTION

Before you glue the tires to the wheels, make sure that the tread pattern is facing the right way. There's nothing worse when using a set of directional tires to have one of the four treads facing the wrong way





# TRAXXAS

## SPORTTRAXX



Traxxas' own SportTraxx tire is made from a super-soft compound, and it features an aggressive pin tread. As Traxxas claims, this is a race-oriented tire; it is very light and performs well in a variety of conditions. Included with each pair is a set of 3-piece contoured inserts.

Item no. — 3970R; \$29/pair.

# TRC OFF-ROAD

TRC Off-Road offers its complete line of tires in unmounted and preglued trim. The tires are molded of a sport compound that gives good performance and maintains long-wearing characteristics.



## PARK

The Park is TRC's asphalt tire. It features a unique street tread that gives good performance on untreated surfaces such as parking lots. Dual-stage foam inserts are included.

Preglued —  
TGY01C; \$41.59/pair.

Unmounted —  
TGo1C; \$29.19/pair.



## GRASS

The TRC Grass is a good, general-purpose replacement tire for when your kit tires wear out. It has a chevron-lug tread that gets good forward bite on most surfaces. Dual-stage foam inserts are included.

Preglued —  
TGY03C; \$41.59/pair.

Unmounted —  
TGo3C; \$29.19/pair.



## MICRO

The Micro is TRC's racing-oriented tire. Racers will want to use this tire when running on hard-packed surfaces. It features a block-pin tread that has a staggered, extended-bar and block pattern down its center. Dual-stage foam inserts are included.

Preglued —  
TGY04C; \$41.59/pair.

Unmounted —  
TGo4C; \$29.19/pair.



## PAQMAN

The PaqMan has an aggressively knobbed tread that is best used on loamy tracks and for most intermediate- and hard-track conditions. It also works well as an all-around tire. Dual-stage foam inserts are included.

Preglued —  
TGY05C; \$41.59/pair.

Unmounted —  
TGo5C; \$29.19/pair.

## PULLER



The Puller features tall, aggressive chevrons for maximum forward bite. The channeled lugs allow them to flex, and that helps provide additional bite. Dual-stage foam inserts are included.

Preglued —  
TGY06C; \$41.59/pair.

Unmounted —  
TGo6C; \$29.19/pair.

## SOURCE GUIDE

IMEX MODEL CO. (352) 754-8522; [imexrc.com](http://imexrc.com).

TEAM ORION (714) 694-2812; [team-orion.com](http://team-orion.com).

PRO-LINE (909) 849-9781; [pro-lineracing.com](http://pro-lineracing.com).

STORMER HOBBIES (800) 255-7223; [stormerhobbies.com](http://stormerhobbies.com).

TRAXXAS (972) 265-8000; [Traxxas.com](http://Traxxas.com).

TRC OFF-ROAD distributed by Trinity Products Inc. (732) 635-1600; [teamtrinity.com](http://teamtrinity.com).

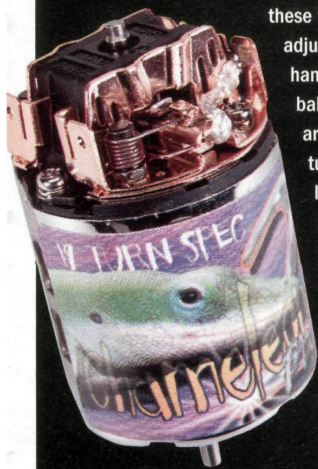


# RACER NEWS

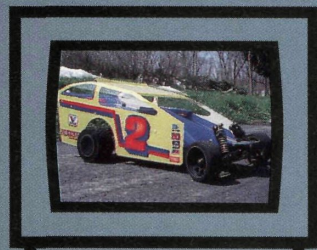
BY GEORGE M. GONZALEZ & JASON SAMS

## ROAR ANNOUNCES 19-TURN RULES

ROAR has implemented surprising rules for the 19-turn racing classes that are popular among "regular" racers. In an effort to keep racing economical and fair, motor manufacturers have built their 19-turn powerplants with machine-wound, drill-balanced armatures, endbells with fixed timing and telltale indicators of the motor's 19-turn status (such as extended armature shafts and labels under the armature winding's epoxy coating). ROAR's new rules don't exploit these features; instead, adjustable timing and hand-wound, epoxy-balanced armatures are legal. The armatures must be labeled "19-turn," but any type of label or inscription is allowed; the labels do not have to be epoxied to the armature.



## SITE SEEING



### dirtoval.com

This free site is for all of you oval fans who want to see more fender-bangin' stuff. It showcases everything from important race events to a detailed list of oval tracks around the country. You'll also find many pictures of trick oval rigs from coast to coast and a very useful forum where you can ask self-proclaimed experts how to get your car dialed.

## BOARD WALK

FROM THE  
RADIOCONTROLZONE  
.COM BULLETIN BOARD

### Removing tires

**MTREZNIN:** What is the best way to remove tires?  
**LAPSTER:** Just put the rim and everything in a pan of boiling water.

**BOMBER1:** Preheat your oven to 400 degrees, then turn it off and put the tires in. Wait awhile, but be very careful.

**GWF:** Acetone works well to dissolve superglue. Pour 1 inch of it into a plastic container (with a lid); after a couple of hours, the tire will separate from the rim.

### Motor terminology

**NITROBUGGYFAN:** What does it mean when someone says, "10-turn double" or "12-turn triple"?

**FILIPINGUY:** Fewer turns means a faster motor. The lower the wind (single, double), the more top-end speed (rpm). The higher the wind (triple, quad), the more bottom-end punch.  
**GRIZZBOB:** Winds are a reference to how many strands of wire are wrapped around each pole (section) of the armature. In a 12-double (or 12x2), you have 2 strands of wire wrapped 12 times around each pole of the arm.

### What to upgrade first

**KRASIS000:** What should be my first upgrade for my RTR sedan?

**RCCARDUDE04:** Get a decent radio with multiple-car memory.

**DG2B:** I would look at a 2-speed tranny, then a radio, then a pipe.

**RANDOMGUY:** Tires, tires, tires!

**BE HEARD!** LOG ON AT  
RADIOCONTROLZONE.COM

## WORLDS, WORLDS and more WORLDS

This year, the  $\frac{1}{10}$ -Scale Electric Off-Road Worlds,  $\frac{1}{8}$ -Scale On-Road Worlds and the  $\frac{1}{8}$ -Scale On-Road Worlds will all be held on U.S. soil.

This is great news for American racers who would like to race at one of the events but who haven't yet qualified. American racers may be able to help fill out the field of racers at race officials' discretion. To find out more about each of these races, check out [kzspeedway.com](http://kzspeedway.com) for the  $\frac{1}{8}$ -Scale Worlds; [minnreg.com](http://minnreg.com) for the  $\frac{1}{10}$ -Scale Electric Off-Road Worlds; and [ifmarworlds.com](http://ifmarworlds.com) for more info on the  $\frac{1}{8}$ -Scale On-Road Worlds.



## Danny doubles Carpet Oval champs



Trackside Hobbies of Brookfield, WI, hosted the annual ROAR Carpet Oval Nationals, and Danny Bartholomew was this year's big winner with dual mod-class victories in  $\frac{1}{12}$  scale and Open Modified. Congratulations to Danny and the other national champions: Trackside Cup Car winner Marty Hageman; 4-cell, 19-turn winner TJ Domark; and 4-Cell Stock winner Dusty Kemp.

## EPIC MOTORSPORTS SIGNS MIKE DUMAS

Mike Dumas, a very talented top-level driver who is a regular in the A-main at just about every event he enters, is the first team driver for Epic Motorsports. Topping the list of his most recent accomplishments are top honors in the highly competitive Modified Touring class at this year's Cleveland



Indoor Champs—one of the most competitive races of the year. He also made a very strong showing in  $\frac{1}{12}$ -Modified with a third-place finish in that A-main.

In addition to Mike's on-track talent, he's also very personable and helpful to other racers. Look for Mike and Epic Motorsports at all the major races this year.

"RCX showcased RC as the cool lifestyle sport that it is, rather than the way outsiders usually view it: as a geeky hobby. I can't wait until next year."

*Maté Francis's take on the recent RCX show in Anaheim, CA*



# RACER NEWS

## SPEED SHOP

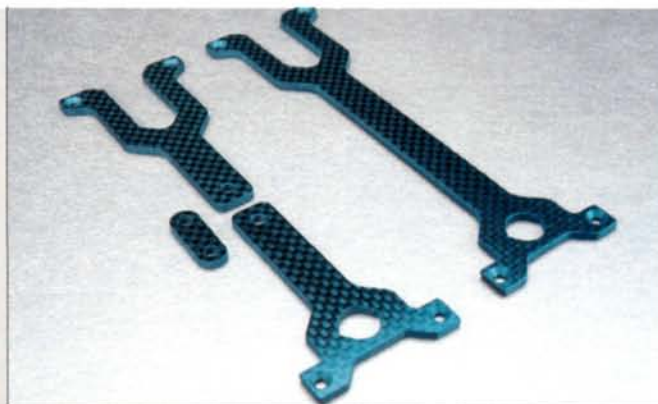


### TRINITY Arcornite Pro

Trinity's new, 19-turn, machine-wound Arcornite Pro is the motor that was used to win the first ever ROAR 19-turn Nats (it also meets ARCORN specs). Its features include adjustable timing, a D4 can and endbell, FB-9 magnets, three surface-mount capacitors, dual ball bearings and standup brushes. According to Trinity, each armature is inductance-tested to check for the lowest resistance, the comm is diamond-trued, and the balance is checked. In addition, the brush hoods and bearings are carefully aligned, the magnets are zapped, and the latest performance-brush and spring combo are installed when the motor is hand-assembled. Last, the motor is dyno-tuned and tweaked for maximum performance.

Trinity Arcornite Pro—item no. 9261; \$59.99.

Trinity Products Inc. (732) 635-1600; teamtrinity.com.



### XRAY Optional upper decks for Evo2

New for the XRAY line of touring cars are two direct replacement upper decks. For those who want to reduce flexing, the first is a CNC-machined, 2.5mm graphite upper deck that's stiffer than the stock upper deck. It also fits the T1 and T1 Raycer as well.

XRAY also offers its new Ultra Flexible Top Deck for the Evo2. These deck pieces allow a car to flex laterally without sacrificing its fore/aft torsional stiffness. This gives the car better grip without having to set the suspension softer, which would only induce unnecessary body roll. According to XRAY, when using this deck, the car's handling becomes less aggressive, and it is easier to drive. CNC-machined 2.5mm graphite upper deck—301161; \$21.95.

Ultra Flexible Top Deck—301170; \$30.95.

XRAY Model Racing Cars distributed by Serpent Inc. USA (305) 639-9665; teamxray.com.

### POWERLINE Mugen MTX-3 aluminum hop-ups

Powerline recently released a whole slew of aluminum hop-ups to help beef up the Mugen MTX-3 nitro touring car. These hop-ups are designed to add strength and reliability to the car. Each aluminum part comes with a purple-anodized finish.

Drive-hex adapters—MTX-3001; \$20.99.

Front-center block/center-support block—MTX-3002/MTX-3003; \$23.29/\$22.99.

Anti-roll-bar mount—MTX-3004; \$23.50.

Brake bracket—MTX-3005; \$23.50.

Rear brace—MTX-3006; \$16.99.

Powerline Racing Products Inc. (718) 238-2586; powerlineracing.com.



### TAKE OFF Alloy car stands

Take Off has all-new, lightweight, anodized alloy car stands that allow you to prop up almost any 1/10- and 1/8-scale on- and off-road cars while you work on them. Best of all, the stands cost only \$15.

Take Off Alloy car stand—T0008B (blue)/T0008BK (black)/T0008P (purple); \$15.

Take Off distributed by Schumacher USA (813) 889-9691; powers-international.com.



### REEDY Tire warmers

Reedy recently released a full set of touring-car tire warmers. Most tires need a few laps on the track to reach the temperature that provides maximum grip, but these warmers get them there before the race even starts. Reedy's tire warmers slip over your car's tires and are powered by a standard, single, 6-cell stick-type battery pack.

Reedy tire warmers—608; \$50.

Reedy, a division of Team Associated (714) 850-9342; teamassociated.com.





## UNDER THE HOOD

**Jared Tebo**

Team Associated Factory Team RC10GT

### RACE GEAR

Transmitter: Airtronics M8  
Receiver: Airtronics 75 MHz FM  
Steering servo: Airtronics 94452  
Throttle servo: Airtronics 94737  
Engine: O'Donnell-modified RB  
Manifold: Losi  
Pipe: O'Donnell

Fuel: O'Donnell  
Tires: Pro-Line Holedshot  
Gearing: 15/66  
Clutch: Associated 3-shoe  
Body: Pro-Line Crowd Pleaser  
Receiver pack: Reedy

### SETUP

	FRONT	REAR
Camber	1 deg. negative	1 deg. negative
Toe-in	0	4.5-deg. in
Caster/anti-squat	25	2
Ride height	Arms level	Dog bones just above level
Shock oil	35	30
Shock piston	2	1
Shock spring	Silver	Green
Shock tower mount	Outside hole	Outside hole
Arm mount	Outside hole	Outside hole
Camber-link mount	Stock	Inside (see "Modifications," below)
Outer camber-link mount	Stock	Inside hole
Wheelbase adjustment	—	Shortest setting

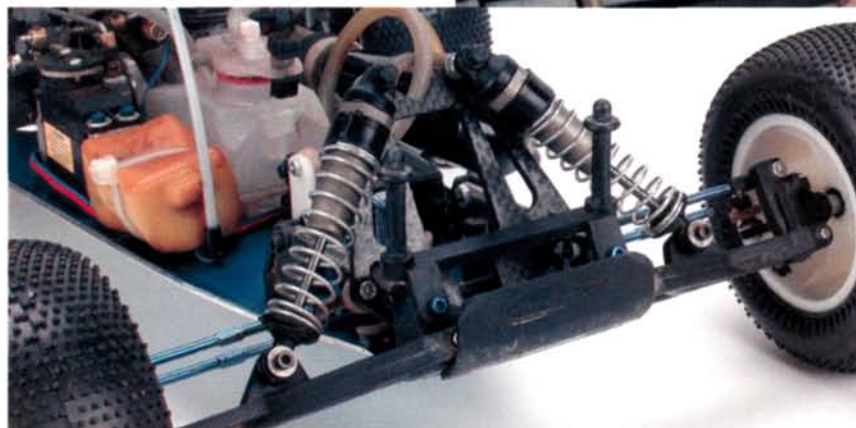
### MODIFICATIONS

Jared's father (who's also his mechanic) drilled a new inner camber-link-mounting hole that's in line with the top row of holes but 0.250 inch farther inward to slightly lengthen the rear camber link.

### FACTORY AND AFTERMARKET OPTIONS

- Associated silver front springs
- Associated Nitro TC3 3-shoe clutch
- Custom titanium front chassis-brace tubes
- Custom aluminum steering and throttle servo mounts
- Custom aluminum front axles
- Custom aluminum CVD drive-pin retainer rings

Jared's truck has no shortage of power, thanks to the O'Donnell-massaged RB rear-exhaust engine. That's an Adam Drake Edition Losi aluminum manifold and an O'Donnell tuned pipe. Check out all the zip-ties on the tuned-pipe coupler; that pipe isn't going to work loose anytime soon. Jared also flipped the fuel tank around and installed a long zip-tie on the lid to speed up refueling.



The front suspension is pretty much bone stock, except for the Associated silver springs and the Pro-Line Holedshot tires. Look closely, and you'll see the solid titanium chassis-brace tubes that Jared's father had machined.



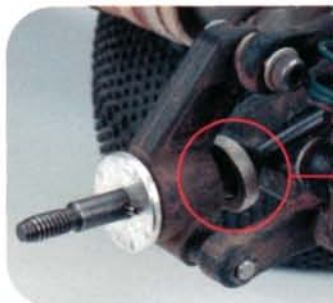


Did you notice the shoulders on these custom-machined axles? The axles are approximately 1/2 inch longer than the stock axles; they widen the truck's front width by nearly 1 inch.



## FACTORY DRIVER HOT MOD

Jared's father, Bruce, machined aluminum rings that slide over the MIP CVD axles to prevent the drive pins from slipping out when the setscrews become loose. He has named these drive-pin retainer rings "Tebo Rings," and several of Jared's teammates have installed Tebo Rings on their trucks' CVD axles. Sorry; the Tebo Rings aren't for sale.



## SOURCE GUIDE

**AIRTRONICS** (714) 978-1895; [airtronics.net](http://airtronics.net).  
**DURATRAX/O'DONNELL** distributed by Great Planes Model Distributors: (217) 398-8970; [duratrax.com](http://duratrax.com).  
**MIP** (626) 339-9007; [miponline.com](http://miponline.com).  
**PRO-LINE** (909) 849-9781; [pro-lineracing.com](http://pro-lineracing.com).  
**TEAM ASSOCIATED** (714) 850-9342; [teamassociated.com](http://teamassociated.com).  
**TEAM LOSI** distributed by Horizon Hobby (800) 338-4639; [teamlosi.com](http://teamlosi.com).  
**TITAN TECH** (626) 960-0547.

# 5 QUESTIONS



**DRIVER:** Jared Tebo  
**AGE:** 16

**LAST BIG WIN:** Silver State Nitro Challenge

**SPONSORS:** Team Associated, Thunder Tiger, Reedy, Pro-Line, O'Donnell, Airtronics, Hudy, XXX-Main

**WHEN I'M NOT RACING, I:** ride my BMX bicycle and dirt bikes. I have a Honda XR50 that I race on a track that we made.

**RADIO CONTROL CAR ACTION:** Congratulations on your big win at the Silver State Nitro Challenge in Las Vegas! Did you think that you had a shot at winning the 1/16-scale Gas Truck class after the first couple of rounds of qualifying?

**JARED TEBO:** Not at all because I didn't do so well during the first couple of rounds of qualifying. Fortunately, nobody else did very well either! My truck started to work much better during the last round of qualifying, and at that point, I knew I had a good shot at winning the Main.

**RCCA:** The track conditions were extremely rough. Were there any particular sections of the track that you weren't 100 percent comfortable with?

**JT:** The track was really rough, but the rougher the track, the better I get. I was pretty comfortable with the whole track. During qualifying, I was having a hard time with the whoops, but I got things sorted out before the Main.

**RCCA:** Who would you say was your toughest competitor?

**JT:** By far, the toughest competitor was Mark Pavidis. He had a huge lead during the Main, and I thought that there was no way to catch him. I was amazed when I found myself right behind him on the same lap. We had some really good racing then. Mark is always a tough competitor, but I guess it was just my turn to win.

**RCCA:** You're very young, and yet you've won quite a few important races. Do you have a mentor or someone you'd like to model your life on?

**JT:** I don't really have a mentor, but I look up to my dad. If it wasn't for him, I wouldn't be racing RC cars, and you wouldn't be asking me these questions right now. He helps me so much and dedicates so much of his time to me. He's also a great mechanic and a lot of fun to hang around with.

**RCCA:** So what do you plan to do after high school? Do you plan to continue racing while you attend college?

**JT:** I plan to go to a tech school for car fabrication. I'm not sure whether I'll be able to race while going to school, but I'm sure I'll be doing a lot of racing after I graduate.





## 2ND ANNUAL

# TEAM LOSI OFF-ROAD

by Paul Onorato

**T**he 2nd Annual Team Losi Off-Road Championship that doubled as an IFMAR Worlds warmup drew racers from around the globe, so the competition was fierce. The Minnreg RC Car Club of Largo, FL, hosted the race, and it will host the IFMAR Worlds in October. One of the underlying stories at this race was the interest in whether Team Associated's B4 could replicate its recent successes by taking the number-one spot at Team Losi's race. The 2WD buggy battle, more than 100 drivers, eight classes and a challenging off-road track made this race the place to be from start to finish.



PHOTOS BY PAUL ONORATO





# AD CHAMPIONSHIP

UP SPONSORED BY TEAM LOSI AND RC CAR ACTION

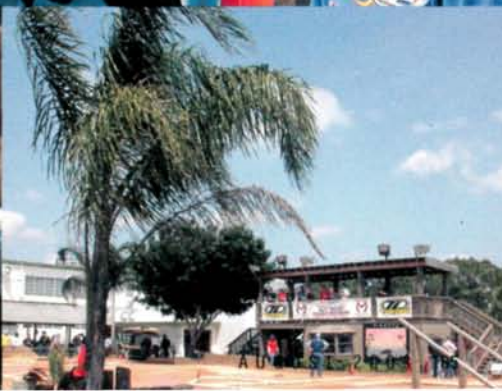
Right: Team Associated's Cliff Lett catches some of the action on the track. Center: the legendary Mike Reedy. Far right: Masami Hirotsuka came from Japan to compete. In Factory 4WD, he drove a new Yokomo prototype to seventh place, and in Factory 2WD, he drove an Associated B4 to 10th.



Matt Francis shoots hoops during downtime. "When I sink this shot, you'll owe me another \$20, kid."



"I want to race, too!"





## MAIN-EVENT ACTION

## 2WD STOCK

Top qualifier: Patrick Castleberry

Patrick Castleberry and his Team Losi Triple-X ruled the 2WD Stock class with a TQ, and he won the first two A-mains to sweep the class. David Green and Joey Powell fought in each of those Mains for second, but in the third Main, David edged out Joey to earn second place overall.

## FACTORY 2WD MODIFIED

Top qualifier: Ryan Cavalieri

Ryan Cavalieri backed up his awesome TQ performance and did Team Losi proud by winning the first two Mains to clinch the title. Mark Pavidis, Travis Amezcua and Brian Kinwald battled for second and third. In the third Main, Mark Pavidis controlled the first position from tone to tone with his B4 to earn second in the class. A spectacular last-lap crash behind the leader re-sorted the field, and Amezcua's B4 finished ahead of Kinwald's Triple-X; that gave him the needed points for third place overall.

## SPORTSMAN 2WD MODIFIED

Top qualifier: Steve-O Pereira

Top qualifier Steve-O Pereira continued his fast pace in the Mains, and his two decisive wins earned him the hardware. David Green and Joey Powell battled each other again for second-place bragging rights, but David and his Triple-X proved to have the better line around the track, and that kept him just ahead of Joey in the points.

## STOCK TRUCK

Top qualifier: Patrick Castleberry

Patrick Castleberry was a man on a mission after another TQ, and with his Losi Triple-XT, he swept the first two Mains again to win his second first-place trophy. Patrick Townes drove consistently in each Main and secured the second spot, and Brayden Sundstrand rounded out the top three.



Team Losi/Trinity drivers Adam Drake and Matt Francis strategize on the best setup for the factory truck class.

## FACTORY MODIFIED TRUCK

Top qualifier: Travis Amezcua

Travis Amezcua was clearly in the zone and showed his domination as TQ and again when he crossed the line first with his Team Associated T3 in the first two Mains. In the first race, Brian Kinwald's Triple-XT was the only truck that stayed close to Travis' T3, and in the second Main, Travis checked out and was the only driver who completed 13 laps. Brian Kinwald and Billy Easton took the second and third spots, respectively.

## SPORTSMAN MODIFIED TRUCK

Top qualifier: Tol Thomas

Although Tol Thomas was TQ, he ran into difficulty in the first and second Mains, but he pulled out two second places. In the third Main, Tol ran a perfect race, and his finish far ahead of the pack helped seal his victory in the class. Going into the last Main, second place was a tie between the Losi trucks that were driven by Jon Crawford and J. Filipow. They swapped positions several times during the race, but J. misjudged a turn and tagged a pipe, and Jon took second overall.

## MINNREG RC CAR CLUB— first-rate racing

Several team drivers told me how much they enjoy competing at the Minnreg track because the racing is very well organized and the crew works incredibly hard to ensure that the track is in the best racing condition possible. Rain at the beginning of the race week could have easily ruined the track, but the crew covered it with giant tarps to protect the racing surface. When the rain subsided, the tarps were removed and sawdust was spread on the track to absorb the water. By Friday afternoon, the track was in great condition, and there was even a visible racing groove. "Some places would have lost the track after a big rain, but not here," said one of the drivers.

## ASK THE PRO'S

Late Saturday afternoon, the Minnreg RC Car Club set up an informal Q&A session with a panel of factory team drivers. This was a great opportunity for the attending drivers and spectators to ask questions of their favorite team drivers. The questions ranged from setup advice to what the drivers do when they aren't racing—and everything in between. The factory drivers enthusiastically shared their extensive RC racing knowledge and experience with the large



Some of the biggest names in electric off-road racing were at Losi's official IFMAR Worlds warmup race. If you had a question, these guys had answers.

crowd, and the loud applause at the end indicated was a hit. It would be terrific if a Q&A session with the factory team drivers became a regular event at the big races.



One of the hardest-working track crews in the country (back row, left to right): Kenny Holmes, Cris Townes, Bill Adgate, Bill McIntosh, Peggy Adgate, Dave Fox, Sam Ledford; (front row, left to right): Mitch, Andy Stephens, Mark (Raptor) Kobisk, Arnie Retzer, Joey Perez, Palm Tree Pete Mavromatis.



# How to win at the 2nd Annual Team Losi Off-Road Championship

- Each class had four qualifiers with two throw-out rounds that established the seeding for the Mains.
- IFMAR qualifying rules were followed: the drivers raced the clock—not each other.
- To determine the overall winner in each class and to prevent luck from being a factor, three, 5-minute A-mains were run. Only two of the Mains counted; each driver's slowest time was dropped.

## FACTORY 4WD MODIFIED

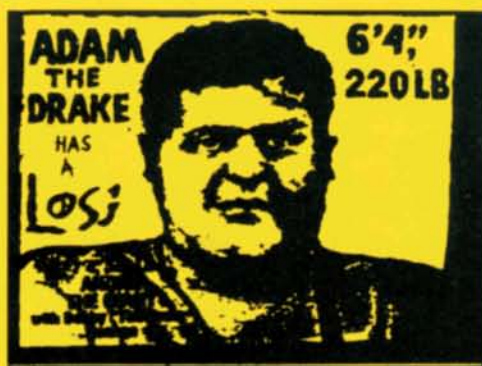
Top qualifier: Ryan Cavalieri

The Factory 4WD Mod class provided the spectators with some of the most exciting racing of the weekend. Top qualifier Ryan Cavalieri was plagued with bad luck; his cars broke during the first two Mains, and that took him out of contention. The first Main was filled with lead changes as five drivers battled for the top position, only to have Travis Amezcua, who had qualified sixth, take the lead in the last minute of the race. In the second Main, Amezcua managed to put his Durango in front yet again, and that solidified his first. Brian Kinwald and Mark Pavidis rounded out the second and third spots, respectively.

## SPORTSMAN 4WD MODIFIED

Top qualifier: Edward Weaver

Edward Weaver backed up his TQ with a hard-fought victory in the Sportsman 4WD class by winning the first and third Mains. Paul Sinclair stayed close to Weaver's Triple-X4, but he could not make a run on him so he had to settle for second. Rounding out third was A.J. Johnson, who overcame a poor performance in the opening race with strong finishes in the second and third Mains. ■



## ADAM THE DRAKE HAS A LOSI

Andre has his posse; Adam has his Losi. We aren't sure who made these hilarious parody decals featuring Team Losi's Adam Drake, but they're damn funny—as long as you're hip to the original. If you're not, check out [obeygiant.com](http://obeygiant.com), and try to be a little cooler, OK?





## WINNERS

## 2WD STOCK



FIN.	QUAL.	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	RADIO	TIRES	PINION/SPUR
1	1	Patrick Castleberry	Losi Triple-X	Handout	SMC	LRP	Airtronics	Handout	*
2	3	David Green	Losi Triple-X	Handout	*	LRP	Airtronics	Handout	22/82
3	2	Joey Powell	Losi Triple-X	Handout	*	*	*	Handout	22/81
4	5	Jason Tah	Losi Triple-X	Handout	*	LRP	Airtronics	Handout	21/78
5	4	Ben Buckingham	Associated B4	Handout	*	Novak	Futaba	Handout	24/81

## FACTORY 2WD MODIFIED



1	1	Ryan Cavalieri	Losi Triple-X	Trinity	Trinity	Novak	Airtronics	Losi	21/78
2	2	Mark Pavidis	Associated B4	Reedy	Reedy	LRP	Airtronics	Pro-Line	23/81
3	4	Travis Amezcua	Associated B4	Reedy	Reedy	LRP	Airtronics	Losi	21/81
4	3	Brian Kinwald	Losi Triple-X	Trinity	Trinity	Novak	Airtronics	Losi	*
5	10	Brian Dunbar	Losi Triple-X	Orion	Orion	LRP	Airtronics	Pro-Line/Losi	21/78

## SPORTSMAN 2WD MODIFIED



1	1	Steve-O Pereira	Losi Triple-X	Orion	Reedy	LRP	Airtronics	Pro-Line	20/82
2	2	David Green	Losi Triple-X	PMD	*	LRP	Airtronics	Pro-Line/Losi	19/82
3	3	Joey Powell	Losi Triple-X	*	*	*	*	*	*
4	4	Jon Crawford	Losi Triple-X	Fantom	Fantom	LRP	Airtronics	Losi	26/92
5	5	Paul Sinclair	Losi Triple-X	Trinity	Peak	Novak	Airtronics	Pro-Line/Losi	23/76

## STOCK TRUCK



1	1	Patrick Castleberry	Losi Triple-XT	Handout	SMC	GM	Airtronics	Handout	*
2	2	Patrick Townes	Losi Triple-XT MFE	Handout	Pro-Match	Novak	Airtronics	Handout	17/86
3	3	Brayden Sundstrand	Losi Triple-XT	Handout	Fantom	Novak	Airtronics	Handout	17/86
4	7	Jason Tah	Losi Triple-XT	Handout	*	Novak	Airtronics	Handout	17/86
5	5	Chris Kohout	Losi Triple-XT	Handout	Pro-Match	Novak	Futaba	Handout	18/86

## FACTORY MODIFIED TRUCK



1	1	Travis Amezcua	Associated T3	Reedy	Reedy	LRP	Airtronics	Pro-Line	16/72
2	2	Brian Kinwald	Losi Triple-XT	Trinity	Trinity	Novak	Airtronics	Losi	*
3	4	Billy Easton	Associated T3	Reedy	Reedy	LRP	Airtronics	Pro-Line	20/81
4	10	Jukka Steenari	Losi Triple-XT	Orion	Orion	Novak	Airtronics	Pro-Line/Losi	17/86
5	7	Brian Dunbar	Losi Triple-XT	Orion	Orion	LRP	Airtronics	Pro-Line/Losi	18/86

## SPORTSMAN MODIFIED TRUCK



1	1	Tol Thomas	Losi Triple-XT	Trinity	Trinity	Novak	Airtronics	Losi	19/86
2	3	Jon Crawford	Losi Triple-XT	Fantom	Fantom	LRP	Airtronics	Losi	18/86
3	2	J. Filipow	Losi Triple-XT MFE	Trinity	Trinity	Novak	Airtronics	Losi	23/98
4	6	Steve-O Pereira	Losi Triple-XT	*	Reedy	LRP	Airtronics	Pro-Line	*
5	5	Chris Kohout	Losi Triple-XT	Fantom	Pro-Match	Novak	Futaba	Pro-Line	18/86

## FACTORY 4WD MODIFIED



1	6	Travis Amezcua	Durango	Reedy	Reedy	LRP	Airtronics	Pro-Line	17/87
2	7	Brian Kinwald	Losi Triple-X4	Trinity	Trinity	Novak	Airtronics	Losi	*
3	3	Mark Pavidis	Durango	Reedy	Reedy	LRP	Airtronics	Pro-Line	16/75
4	4	Jukka Steenari	Losi Triple-X4	Orion	Orion	Novak	Airtronics	Pro-Line	17/94
5	9	Brian Dunbar	Losi Triple-X4	Orion	Orion	LRP	Airtronics	Pro-Line	17/94

## SPORTSMAN 4WD MODIFIED



1	1	Edward Weaver	Losi Triple-X4	Orion	Orion	LRP	Futaba	Losi	18/92
2	3	Paul Sinclair	Losi Triple-X4	Trinity	Peak	LRP	Airtronics	Pro-Line	18/94
3	5	A.J. Johnson	Losi Triple-X4	Orion	Trinity	Novak	Airtronics	Pro-Line	20/82
4	7	Jeff Harris	Losi Triple-X4	Orion	Pro-Match	LRP	Airtronics	Pro-Line	18/84
5	8	Tol Thomas	Losi Triple-X4	Trinity	Trinity	Novak	Airtronics	Pro-Line	19/92

\*Information not supplied by driver



The overall winner in each class took home one of these cool trophies.



The tech area was busy all weekend. Arnie Retzer techs Mark Konza's stock truck.





PRODUCT PROOF

# MRC Super Brain 969



Smarter than ever

by Peter Vieira



**W**hen it was released in 1998, MRC's original Super Brain charger brought reliable, microprocessor-controlled, peak-detection technology to a lower-than-ever-before price point, and the Super Brain 959 that followed in 2001 added new features (most notably, an LCD and adjustable amperage and voltage threshold) with barely a price increase. Most recently, the \$60 Super Brain 959 was half the price of the next most affordable charger in the April 2003 issue's "Pro Charger Guide." Now MRC is set to release another addition to the Super Brain family: the 969. With more features, a new look and bold claims from MRC, this latest Brain-box could be a worthy competitor for some of RC's priciest chargers—even though it costs only about \$100. Let's see what the Super Brain 969 can really do.



## FEATURES

### > AC/DC POWER.

The 969 uses a separate transformer to convert AC power to DC. It's a little less convenient than an all-in-one setup, but if you plan to use the 969 with DC power, the two-piece arrangement is actually more convenient. You can leave the transformer at home and lighten up your pit bag.

### > LCD SCREEN.

The 969 uses an 8-segment calculator-type display and graphic additions (such as a battery image that "fills" as the 969 charges) to deliver information. Along with values for the charge settings, the screen shows the pack's capacity in milliamps and its voltage.

### > CAPACITY AND TIMER FAIL-SAFES.

In addition to the usual delta-peak detection charging (a drop in battery voltage is taken as the indicator of a full charge), you can set the 969 to turn off when the pack has reached a user-specified capacity in milliamp hours, or when the charge process has reached a user-set time limit.

### > ADJUSTABLE VOLTAGE THRESHOLD.

You can set the voltage drop that the 969 "looks for" as an indicator of a full charge. The setting range is 5 to 75 millivolts in 5mV increments.

### > BUILT-IN DISCHARGER.

The 969 can discharge on "Output A" with a maximum rate of 3 amps. While one battery pack is being discharged on "Output A," another battery pack can be charged on "Output B," which adds to the charger's versatility.

### > DUAL OUTPUTS FOR SIMULTANEOUS CHARGING AND DISCHARGING.

In addition to a hard-wired Tamiya-type connector ("Output B"), the 969 can be connected to a battery through a pair of banana-plug ports ("Output A"). A harness with male banana plugs that are connected to another Tamiya connector is supplied. The 969 can charge or discharge two packs simultaneously, even if the packs are of different sizes and cell types. It can even charge one pack while discharging another.

### > 1 TO 8 CELLS NI-CD, NIMH, LI-POLY AND LEAD-ACID COMPATIBILITY.

That pretty much covers the spectrum, doesn't it? The lead-acid option will be handy for you guys who like to use gel-cells in your starter boxes, and micro-flight fans will like the Lithium-polymer (Li-poly) option. Since the 969 can charge 1 to 8 cells, you'll be able to juice up everything from your transmitter batts to a glow-starter.

### > ADJUSTABLE CHARGE AND DISCHARGE AMP RATES.

Both the charge and discharge rates are adjustable in 0.1A increments, with a range of 0.2 to 4.5 amps in charge mode and 0.2 to 3 amps in discharge mode.

### > INTERNAL COOLING FAN.

Remember when we all carried fans to the track to cool our chargers? The 969 has its own fan inside the case to keep the circuitry cool.

### > 12-BIT ANALOG-TO-DIGITAL CONVERTER, DIGITAL SIGNAL PROCESSING FILTERS AND "MICRO PEAK" TECHNOLOGY.

Those terms are techno-speak for more accurate peak detection. According to MRC, the combination of the 12-bit microprocessor, digital signal filtering and more frequent monitoring for voltage drop helps the 969 detect peak battery capacity sooner, which prevents unnecessary battery heating.





This screen allows you to input the pack's capacity in milliamps. The "A" in the upper left corner indicates that Output A is being programmed.



The 969 is also set for the number of cells in the pack, from 1 to 8.



This is an important screen; it's used to set the voltage threshold. Here, it's set for 30mV (5mV per cell in a 6-cell pack).



The 969's charge rate is adjustable as well; it maxes out at 4.5 amps.



To prevent overcharging, you can set a time limit for the charge cycle. No matter which screen you're on, the battery graphic is displayed and "fills" as the pack charges.

## OPERATION

Five buttons operate the 969. "A/B select" toggles the LCD between the 969's two outputs, so each output can be programmed independent of the other. "Display select" cycles the LCD screen through the settings: number of cells, charge rate, discharge rate, voltage threshold, capacity and charge time. The "+ charge" and "- discharge" keys are used to raise and lower the values of the settings, to accept when the voltage display is selected for Output A and to select the charge or discharge mode. The last key is labeled "Start/Stop," which needs no explanation.

## TESTING

I first used the 969 with AC power to charge a 3000mAh stick pack. Although the 969 is easily set for 6 cells, I decided to let the 969 choose the voltage threshold, and it went with 5mV per cell. That's the lowest (and safest) setting, which is good; it's better to be conservative!

I set the amp rate to the 4.5A maximum and let the charger cook. When the 969's display read "Stop" (to indicate that the pack was fully charged), I cycled through the screens to see the charge specs. After charging for 40 minutes, the pack had received 3,080 milliamps, and it was just slightly warm, which suggested that MRC's cool-charging features really work.

To test the simultaneous-charging function, I programmed "Output A" to recharge the 3000mAh stick pack while "Output B" was programmed to charge an 1100mAh 5-cell receiver pack. The 969 finished charging the receiver pack first, then continued with the stick pack. Both charged completely.

I next tested the 969's built-in discharger. Its 3A max setting isn't ideal for dumping fully charged packs (it's best for the packs to be dumped at amp rates that are close to what they'll see in action—usually 20 to 30 amps), but this rate is good for draining off the last bit of charge after a run. I wanted to give the 969 a workout, so I dumped a full pack. Thanks to its internal cooling fan, the 969 barely warmed as it drained the pack.

Follow-up tests with packs of various capacities and cell counts showed similar results, but fully depleted NiMH cells that had been sitting for quite a while required a few restarts before they would take a full charge (as is common with other chargers). If that bugs you, you can bump up the voltage-threshold setting, but be warned: you could overcharge your pack. I'd rather use a lower (safe) setting and hit the start button an extra time or two.

## THE VERDICT

The MRC Super Brain 969 is a very smart buy for anyone who needs pro-level features but can't afford a pro-level price (or just doesn't want to pay a pro-level price). Sure, it would be nice if the maximum charge and discharge rates were higher, but the 4.5A maximum charge rate is what most battery guys recommend. The 3A discharge is fine for pulling down the last volts from your packs, if not dumping them when fully charged. But in the light of its insanely low price (around \$100), any such gripes vanish. I can't imagine any way to get more for your charging dollar than what you get with the MRC Super Brain 969.

## SOURCE GUIDE

MODEL RECTIFIER CORP. (MRC) (732) 225-2100; modelrectifier.com.



# New RTR Do's & Don'ts

Get your RTR ready to run its best! by Stephen Bess

**G**reat! You took a hammer to your piggy bank and bought that ready-to-run nitro car you've been admiring at the hobby shop for the past six months. It may look totally ready to go with its painted body and fully assembled chassis, but there are still a few steps you should take before you fire it up. Follow these simple "do" and "don't" rules, and your new RTR will be ready to run its best.

## Do's



■ **CHECK ALL THE SCREWS FOR TIGHTNESS.** Gently twist each one with the appropriate tool to make certain it's tight enough, and tighten if it isn't. Pay extra-close attention to the engine-mounting screws; if they loosen easily, remove them one at a time, put a drop of thread-locking fluid on each, and reinstall them. As long as you remove and reinstall the screws one at a time, you won't alter the factory-set gear mesh.

■ **PREPARE YOUR ENGINE.** RTR nitro engines aren't usually broken in at the factory, and yours might not have enough lubrication. Remove the glow plug, and drip several drops of after-run oil into the glow-plug hole. This extra lubrication will protect the engine when you first start it, and starting it will be easier. Last, check that the air filter is secured with a zip-tie and that the filter element is oiled.



■ **CHECK ALL THE COMPONENTS.** Again, a general "once-over" now will save you headaches later; inspect each component to make sure that it's securely attached. If it isn't secured in a separate compartment, make certain that the receiver is well secured by double-sided tape or a zip-tie, and check that all the servo connectors are securely attached to the receiver.

■ **INSTALL FRESH TRANSMITTER BATTERIES.** Don't skimp here; if you aren't sure whether that pack of AA cells is new or two years old, buy new cells. Radio range is limited by the power of your transmitter cells, and a dead battery means a disobedient vehicle—not good. Toss out the old pack and buy a new one.



■ **GLUE THE TIRES.** Don't skip this step! If you don't glue the tires, they'll come off the wheels almost instantly. Use a high-quality tire glue from Team Losi, Trinity, or Pro-Line to keep those sneakers stuck. If your car or truck has factory-glued tires, check for any gaps between the tire and wheel, and add glue if necessary.





You'll rarely find these in an RTR's box; buy these necessities before you head out to run your vehicle.



■ **Glow igniter.** You'll need one to start your engine. Cheaper glow igniters accept alkaline C or D cells, but if you want to save money in the long run, buy a rechargeable glow igniter that comes with a wall charger. Charge the igniter all night before a day of bashing to ensure that it will be ready.



■ **Extra glow plug.** Engine break-in is notoriously hard on glow plugs; while you're at the shop, pick up a spare glow plug of the type that's installed in your engine. You may not use it immediately, but it's cheap insurance against having a dead glow plug foul up your day at the park.



■ **Fuel bottle.** Buy one! You'll be glad you did when you see your buddy attempting to fill his tank from his gallon jug; your chassis will be clean, and you'll have a full tank while his will be drowning in nitro fuel.

■ **Paper towels.** You'll need these to wipe away spilled fuel and to clean off the gunk at the end of the play day. Wad a small piece of paper towel into the exhaust stinger to prevent oil from dripping everywhere when you transport and store your vehicle.

■ **Tools.** A basic set of screwdrivers (Phillips- and flat-head), slip-joint and needle-nose pliers and a glow-plug wrench are all wise investments. There's

no need to buy full sets of expensive tools at this point; pick up the tools you need for your particular vehicle's screws and nuts, and you'll be prepared to fix it if necessary.

## Don'ts



■ **DON'T YANK THE STARTER CORD UNTIL YOU'RE READY TO START YOUR ENGINE.** Never pull repeatedly on a cold, new nitro engine's pull-start cord unless you're actually trying to start it. It's important to avoid unnecessary engine wear at this critical stage.

■ **DON'T NEGLECT ENGINE BREAK-IN.** It's important to getting the most out of your new engine; avoid "drivin' it like ya stole it" until the engine has been properly broken in. Most RTRs include engine break-in procedures in their instruction manuals, but if yours doesn't, check out "The Truth about Engine Break-In" in the January 2002 issue of *RC Nitro* (or go to [rcnitro.com](http://rcnitro.com) if you don't have that one).

■ **DON'T USE RECHARGEABLE BATTERIES IN YOUR RECEIVER.** Rechargeable AA batteries are a great idea for transmitters (as long as they're fully charged) but not for RTR 4-cell receivers. Average receivers and servos require from 4.8 to 6 volts to operate properly, and 4, 1.2V rechargeable AA cells only start at 4.8 volts. Use 4 new non-rechargeable alkaline AAs, or consider investing in a 5-cell rechargeable receiver pack to supply the receiver with 6 volts. Low receiver



## Get started!

There's a lot more to RTRs than I can possibly cover in one article, but by following these simple steps, you'll ensure that your RTR is ready to rock when you are. Resist the urge to see immediate action; a little patience and effort spent on preparing your RTR now will result in uninterrupted hours of fun in the future! ■



# Project: Tamiya Trail Master

I recently got my hands on Tamiya's new Trail Master QD truck. The "QD" stands for "Quick Drive"—Tamiya's line of ready-to-run electric vehicles for young first-time drivers. The QDs are better described as high-quality RC toys rather than as serious, hobby-level gear, but the Trail Master's mini-TXT-1 looks and solid-axle 4-link suspension immediately had my interest. Then I drove it, and its fully proportional controls and surprising speed got me hooked. I decided to modify my Trail Master to turn it into a high-performance mini-monster; here's how.

## You'll need

- Rotary tool with cutoff wheel
- 8-cell AA battery holder (RadioShack)—item no. 270-324
- 9V connector (RadioShack)—270-325
- Tamiya connector—50106
- Pro-Line ball ends—6020-00/2 packs
- Lunsford turnbuckles (8; 2<sup>5</sup>/<sub>8</sub> in.)—1066
- Associated 1.02 shocks—6421/pair
- Associated 1.02 blue shock bodies—6425B/pair
- Associated silver springs—7428 (pair)
- OFNA cone washers (2 packs)—104333
- 12, 1-inch-long 4-40 screws
- 4, 1<sup>1</sup>/<sub>4</sub>-inch-long 4-40 screws



Before



After

PHOTOS BY PETE HALL & DERON NEBLE



Cut line &gt;

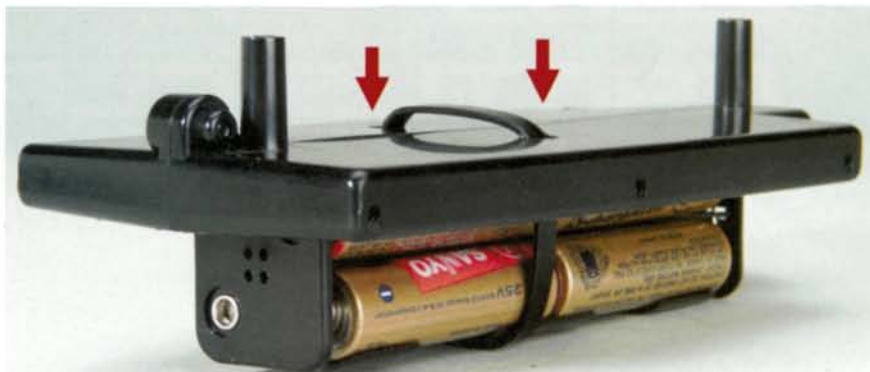


Modify the battery box by cutting just below the top tray. A rotary tool or a hacksaw will work fine for this.

Cut line &gt;



Now make room for the battery holder. The dotted lines show you how to enlarge the opening the tray.



Drill holes in the top of the tray—one on each side of the battery holder—and secure the holder with a zip-tie.

## Modify the battery box

You'll have to modify the battery box to fit the new suspension links and battery. You'll need to do a little cutting, but it's easy; just follow along.

- 1 Take the body off the chassis by removing the four screws that hold it in place.
- 2 The receiver/speed-control box is attached to the top of the battery box with two screws. Remove the screws from this box, and take it off the battery box. Loosen all the screws that hold the battery box in the chassis, and then remove it, too.
- 3 Take out the screws that hold the battery-box halves together and separate the halves so you'll be able to remove the battery connector.
- 4 You'll see a 1/4-inch-thick tray at the top of the battery box. Using a rotary tool and a cutoff wheel, cut the bottom of the battery box off the underside of the shelf (wear eye protection while you're cutting).
- 5 Clean up the opening to make room for the battery holder.

## Build a high-capacity battery pack

The Trail Master uses a special 8-cell pack that's a little bulky and delivers only 650mAh. You can easily make a new battery pack that's more compact and will last twice as long. I picked up 8, Trinity 1150mAh AA rechargeable cells and assembled them as follows:

- 1 Put the cells in a transmitter battery holder (available at electronics and hobby stores).
- 2 Solder a female Tamiya connector to a 9V snap connector. Slide a piece of heat-shrink tubing over each lead before you solder, so the

tubing will insulate the joints after you've soldered them. Pay close attention to polarity: the positive lead goes to the "cup" side of the 9V snap connector. Plug your Tamiya 9V snap connector onto the battery holder.

- 3 Attach the completed pack to the bottom of the modified battery box with zip-ties.
- 4 Reattach the receiver/speed-control box, and install the assembly in the chassis.



Here's the battery adapter; to make it, all you need are a female, Tamiya-style connector and a 9V battery connector.



4 X 4

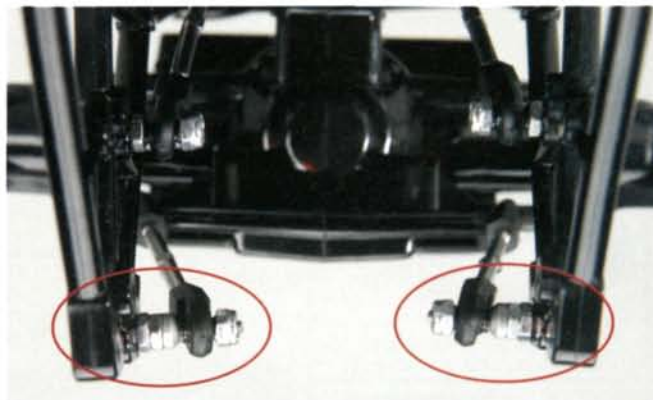


These 4-inch Team Associated shocks are the perfect length. They work more smoothly than the stock shocks, and you need only one per wheel.

To prevent the shocks from falling off, put a washer between the heads of the screws and the shock spacers.

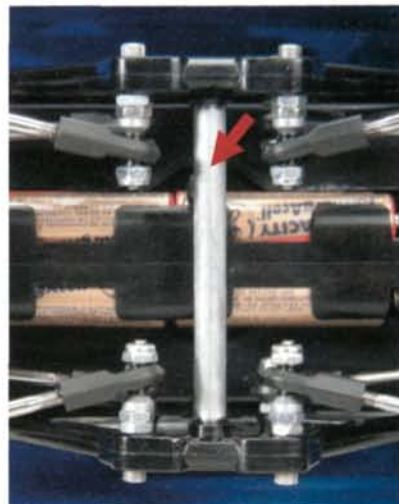


My new links; I made them out of Lunsford titanium turnbuckles and Pro-Line ball ends.



Above: to prevent the axle from moving from side to side, the lower links have a few nuts and a cone washer behind the ball ends where they're connected to the chassis.

Right: the links were originally sandwiched between the chassis and battery box. When I removed the box, I had to stiffen the chassis with an aluminum brace. I machined this one, but you can easily make one with a section of brass tube and a threaded rod.



## Add oil shocks

The stock plastic shocks are mainly for looks. The springs that support the chassis are very stiff and don't allow the axles to move much. I replaced them with Team Associated shocks. These aluminum-body, oil-filled shocks are used on the front of Associated's T3 and GT trucks. When fully extended, they're 4 inches long—the perfect length for the Trail Master. You don't have to use these particular shocks for your project; any 4-inch-long shocks will do (Tamiya and DuraTrax both offer shocks in this length). I filled the shocks with 10WT shock oil and installed Associated's silver springs. You need one shock for each wheel, and mounting the Associated shocks on the chassis is a little tricky.

- 1 Use a 4-40 screw to secure the shock's lower eyelet to the axle (3mm screws don't fit).
- 2 Mount the top of the shock by putting a washer on a 3/4-inch 4-40 screw and then sliding the screw through the top of the shock. Thread the plastic mount onto the screw, and then thread the assembly into the chassis' shock-mounting hole.

## SOURCE GUIDE

**ASSOCIATED** (714) 850-9342; teamassociated.com.  
**LUNSFORD RACING** (541) 928-0587; lunsfordracing.com.  
**OFNA RACING** (949) 586-2910; ofna.com.  
**PRO-LINE** (909) 849-9781; pro-lineracing.com.  
**TAMIYA AMERICA INC.** (800) 826-4922; tamiyausa.com.  
**TRINITY PRODUCTS INC.** (732) 635-1600; teamtrinity.com.

## Improve suspension action

The stock suspension's action is very limited because both ends of each link are captured, and it can't rotate. Here's how to greatly improve suspension travel and single-wheel travel.

- 1 Remove all the suspension links.
- 2 Install Pro-Line ball ends on the eight, 2 5/8-inch Lunsford titanium turnbuckles.
- 3 In the chassis' original mounting holes, install eight, 4-40 screws: four 1 1/4-inch screws to mount the lower links and four 1-inch screws to mount the upper links.
- 4 Install the links using the mounting screws; on the lower links, add cone washers between the ball ends and the chassis. Secure the ball ends with nuts.
- 5 Attach the axle side of the links to the axles using 1/2-inch-long 4-40 screws.

Reinstall the body, and the conversion is complete! You'll find that your truck handles much better. Take your time with this project, especially when you cut the battery box, and you'll have a fun-to-drive monster that's small enough for the living room and can also handle outdoor off-road action. ■



## Nitro Engine Ignition Options

**H**ow many ways are there to heat a glow plug and start a nitro engine? — more than you probably think. Want an onboard ignition system that greatly reduces the chance of a flameout? Read on to discover how many ignition options you have, and decide which one suits your needs. You may be surprised by the possibilities!



### ■ ALKALINE GLOW IGNITER

The most basic ignition source is a hand-held glow igniter powered by a single-cell alkaline battery.

**Advantages:** it's cheap and it's self-contained.

**Disadvantage:** the battery doesn't last long.

Alkaline-powered igniters are initially very inexpensive, and a pair of top-grade alkaline cells doesn't usually set you back more than 5 bucks. Alkaline cells won't survive as many starts as a good Ni-Cd or NiMH rechargeable battery, but they'll get you rolling cheaply.



A typical flight box for RC airplane fliers. A 12V battery is installed inside, and it's attached to the power panel shown. Below: a hand-held starter, a glow igniter and even a fuel pump can be powered through this panel. The flight box also has room for a gallon of fuel and miscellaneous tools and supplies.

This Hangar 9 Power Panel features outputs for a 12V starter, a 12V fuel pump and a glow igniter. A switch allows the fuel pump to be operated in either direction (to fill or empty the tank), and a momentary switch runs the pump only while you hold it down. Note the adjustable glow driver; it allows you to adjust how much juice goes to the glow plug.

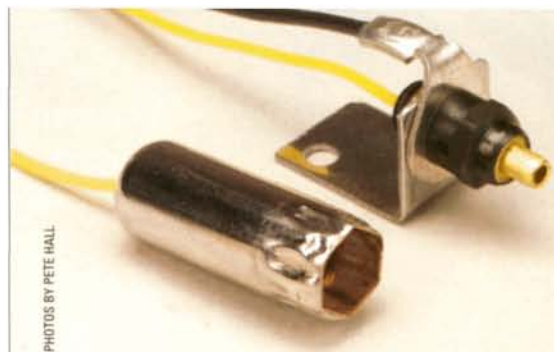
### ■ POWER PANELS

If you go to an RC flying field, you'll see power panels attached to fliers' field boxes. They typically have outputs for a glow-igniter adapter and a hand-held starter, and some even have a meter or two to indicate the supply battery's voltage level and the condition of the glow plug.

Variations of the power panel have made their way into some starter boxes.

**Advantage:** they allow you to power your glow plug from the batteries that power the starter box.

**Disadvantage:** when your car starts, the cord connected to the igniter might get wrapped up in its drive train.



PHOTOS BY PETE HALL

A remote glow adapter such as this one from Sullivan eliminates the need to cut a hole in the body for access to the glow igniter. Simply install the adapter bracket in an easily accessible location, and you'll be able to attach the glow igniter without cutting unsightly holes in the body.

### ■ SULLIVAN HEAD LITE REMOTE IGNITER ADAPTER

Did you ever want to create a super-detailed, scale replica body for your nitro car, but you didn't want to mar its body with a glow-igniter hole above the engine? You need a remote igniter adapter.

**Advantages:** a remote igniter allows you to heat a glow plug without attaching a glow igniter to it, so there's no need for a glow-igniter hole in a car's body. You also don't have to remove the body to start the engine. Sullivan's remote igniter locks onto the glow plug and is connected to the remote plug by a long wire. Simply mount this plug on your vehicle in an easy-to-access area, and heat it by attaching a glow igniter to it.

### ■ RECHARGEABLE GLOW IGNITER

**Advantages:** this is inexpensive and self-contained, too, and you don't have to replace the battery. In addition, the Ni-Cd and NiMH batteries used to power rechargeable igniters can deliver more current, so they'll ignite the glow plug many more times than igniters powered by alkaline batteries. Over time, these will save you money.

**Disadvantage:** higher start-up cost because the rechargeable battery costs more, and you'll need a charger.



Rechargeable glow igniters such as these from Sonic-Tronics, DuraTrax and Sullivan are the most popular and economical over the long term. These types of glow igniters are usually available with and without a meter to indicate the state of charge in the battery and the condition of the glow plug.



## JHM AERO DGS2 GLOW DRIVER

This onboard "auto glow" ignition system is the ultimate in high-tech ignition wizardry. The system consists of a 1.2V rechargeable cell and a small circuit box and is plugged in between your receiver and throttle servo. The dial allows you to select when the ignition kicks in to supply power—at anywhere from idle to full throttle.

**Advantages:** this system will power the glow plug at a preset throttle position (usually near idle). This greatly reduces the chances of a flameout caused by poor needle settings. The unit I tested allowed the low-speed needle to be as much as a full turn rich from an ideal needle setting, and the engine idled well and ran well at low speeds. This system will allow those of you who haven't yet mastered engine tuning to be a little less precise with your needle settings before performance suffers.

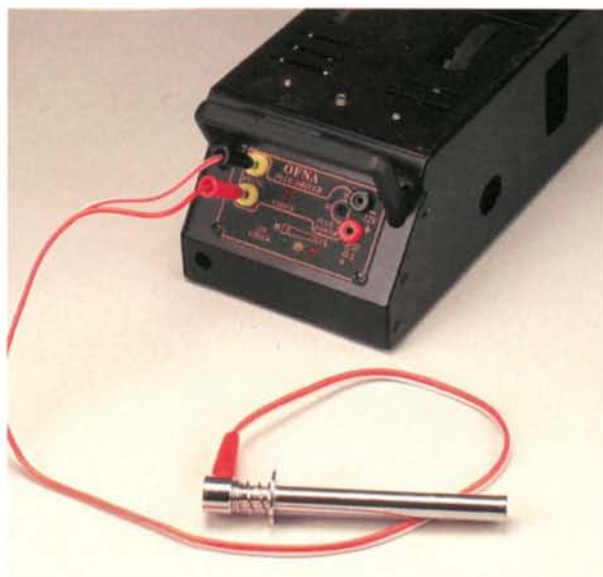
**Disadvantage:** it's an onboard system, so your vehicle must tote it around everywhere it goes, and that means a little extra weight and a more crowded chassis.



The JHM Aero DGS2 includes an onboard battery and interfaces with the radio system to power up the glow plug when the throttle position drops below a certain point. This helps to keep the engine running well at low speeds even with an overly rich fuel mixture, which would usually cause the engine to stall.



Compact power panels are also available as standard or optional features on car starter boxes. The power panel in this OFNA starter box includes outputs for a glow igniter, a glow-plug power adjustment, jacks for powering an external 12V accessory or charging the internal 12V battery and indicators to check the condition of the glow plug and the internal battery.



Glow adapters such as the one shown here can be used with power panels, so you don't need to go to the extra expense and trouble of maintaining a conventional igniter.

## TECH & A

**Q** I have a T-Maxx with the new 2.5 engine, which performed incredibly well until recently, when my truck ran away and flipped over. The engine ran at max rpm for nearly a minute, and then the glow-plug element burned out. After the incident, I took the engine apart and cleaned everything, sealed the carb and backplate and installed a new glow plug to try to restart it. No matter what I try, the engine does not run for more than a minute or two, and it stalls whenever I bring it to a stop. The clutch is good, but I think something must be wrong because the engine just won't run.

Matt Garrett

**A** Unfortunately, it sounds as if the runaway damaged your engine so much that you'll have to replace most of its components. High-rpm runaways stress an engine's components and often cause catastrophic failure. It's a testament to the 2.5's strength that nothing internal broke, but it sounds as if the connecting rod may have been stretched or cracked, and heat probably fried the engine bearings. The piston/sleeve "pinch zone" usually suffers considerable wear during a high-heat, high-rpm runaway. The heat and a lack of lubrication quickly wear away the area at the top of the sleeve where the piston fits tightly to seal the combustion chamber. When these parts no longer "pinch" together tightly, the engine will not run properly. Compression can be totally lost, and parts can be worn out in a matter of seconds. The result is an engine that idles and performs poorly—if at all. The costs of a total engine repair (bearings, connecting rod, crankshaft, piston and sleeve) are often close to or equal to the cost of a new engine, so check your local store's prices to determine whether a brand-new engine would be the best option. A 2- or 3-second runaway might not damage an engine, but an extended runaway like the one your engine experienced can lead to a catastrophic failure.



A runaway, in which the engine revs to insanely high rpm for prolonged periods, can damage the "pinch zone," or the fit between the piston and sleeve at the top of the cylinder. The piston on the left is clearly worn, as it can easily be pushed up to the top of the tapered sleeve or beyond. A new piston, or one that's in good condition (right), is too tight in the sleeve and would be unable to reach that high.

## CONTACT THE PISTON POWER SOURCE

Send your questions and comments to Stephen Bess, [stephenb@airage.com](mailto:stephenb@airage.com).

## SOURCES

**DURATRAX** distributed by Hobbico/Great Planes (217) 398-8970; [duratrax.com](http://duratrax.com).

**JHM AERO ENGINEERING** (386) 428-2916; [jhmaeroengineering.com](http://jhmaeroengineering.com).

**KYOSHO** distributed by Great Planes Model Distributors (217) 398-8970; [kyosho.com](http://kyosho.com).

**OFNA RACING** (949) 586-2910; [ofna.com](http://ofna.com).

**SONIC-TRONICS** (215) 635-6520; [sonictronics.com](http://sonictronics.com).

**SULLIVAN PRODUCTS** (410) 732-3500; [sullivanproducts.com](http://sullivanproducts.com).



# How to Paint Perfect Flames

## Spontaneous combustion in 8 steps

**N**othing quite says "speed" like a well-painted set of flames. Whether ripping down the track or merely bench racing, a killer flame job always adds that special bit of performance. Flames can come in many different forms, with options for endless variety and color combinations. However, one thing all good flames have in common is the perfect flame-lick. But there's more to that perfect lick than a well-drawn flame; important painting details are required to make it "pop."

This month, I'll show you how to paint a pinstriped set of flames using three styles of flame-licks. The process uses liquid mask as a masking agent and the flame designs were painted using water-based acrylic paint applied with an airbrush. If you don't have an airbrush, most of these techniques can still be used with spray cans.

### YOU'LL NEED:

- Liquid mask. The Bob Dively and Hobbico brands work well.
- Hobby knife with a new no. 11 blade.
- RC body cleaner. Trinity Body Blast is the best, but regular iso propyl alcohol works, too.
- Extra-fine permanent marker. Use a Parma detail marker or a Sharpie pen.
- Hair dryer. Optional, to speed drying time.



**1 CLEAN AND LIQUID-MASK THE BODY.** Gently wash the body with soap and water to remove any residues and to ensure maximum paint adhesion. The body used for this project is an HPI Mercedes S-Class AMG. Apply liquid mask to the inside of the body with an airbrush or with a paint brush; in either case, be sure to apply an even coat. I typically dilute the liquid mask by approximately 20 percent with water, and airbrush on three medium coats. (If you brush the mask on, dilution isn't necessary.) Always allow the mask to dry between coats.



**2 SKETCH YOUR DESIGN.** The most important task in creating a killer paint job is to lay out the design you plan to paint. Use an extra-fine-point permanent marker to draw the design on the outside of the body. Feel free to draw as much as you like on the body. If you make a mistake, rubbing alcohol will easily remove the ink. When the body has been painted, you'll remove all the sketch marks this way, or if it's covered with a protective film, all your sketch marks will lift off with the film after painting.



One of the most important points to consider when drawing flames is to avoid straight lines and to follow a policy of "increasing or decreasing." That means flames should always appear to be turning, and that the interior of a lick should either increase or decrease in width while following a consistent curve. Practice makes perfect, so be sure to sketch out numerous flames on paper to get a feel for the style you want. If you aren't comfortable drawing directly on the body, draw the design on paper and then hold it to the underside of the body to trace the design.

**3 CUT OUT THE FLAMES.** In general, the finer details of the design should be painted first. I carefully cut the main body of the flames out of the mask by tracing the pattern with the tip of a no. 11 blade; only very light pressure is required. When all the outlines have been cut, lift a corner of the mask off the body with an old airbrush needle, toothpick, or similar pointed item. Don't use the tip of your hobby knife, as it will scratch the body. Lift the waste mask slowly and carefully to prevent surrounding sections of masking from being pulled off, too.





**4 TIME TO PAINT.** After main body of the flames has been removed, it's time to apply the first color. I used a neon yellow that I faded back from the tips of the flames as I sprayed the paint at approximately 45psi. When using neon colors, make sure that you apply at least three coats. A hair dryer can be used to speed the drying time between coats.

The neon yellow was then backed with three coats of white. Neon colors should always be followed by white to make the color "jump." Although the general rule is to paint the darker colors first, you can paint the lighter colors first as long as they are fully back-coated and the color appears opaque.

You may have noticed that I only drew the main body of the flames on the design, but not the pinstripes. Once a section has been painted, it is much easier to add the pinstripe by simply painting a line. For this design, I used the hobby-knife blade to cut a pinstripe that was approximately  $\frac{1}{16}$  to  $\frac{1}{8}$ -inch wide along the edges of the flames. The pinstripe cutouts were then removed, and the area was ready for paint.



Graffiti flames.



Gothic flames.

## FLAME STYLES

For this body, I sketched three flame styles: classic, gothic and graffiti. Classic flames have evenly spaced licks with smooth radiused edges, and the tips point only in one direction. Gothic flames are more modern and can take many forms, but they typically have many hooks and points that shoot off in any direction. Graffiti flames are similar to classic flames, but they have highly exaggerated dips and curves. These are some of the common flame types, but there are many more variations and styles.



Classic flames.



**5 COLOR THE STRIPES.** I filled in the pinstripes with pearl silver paint and backed them with flat black. No special techniques—just straight spraying. In conjunction with the flame design, I added a racing stripe along the side of the body. After the mask was removed, it was faded in with black and a series of metallic greens.



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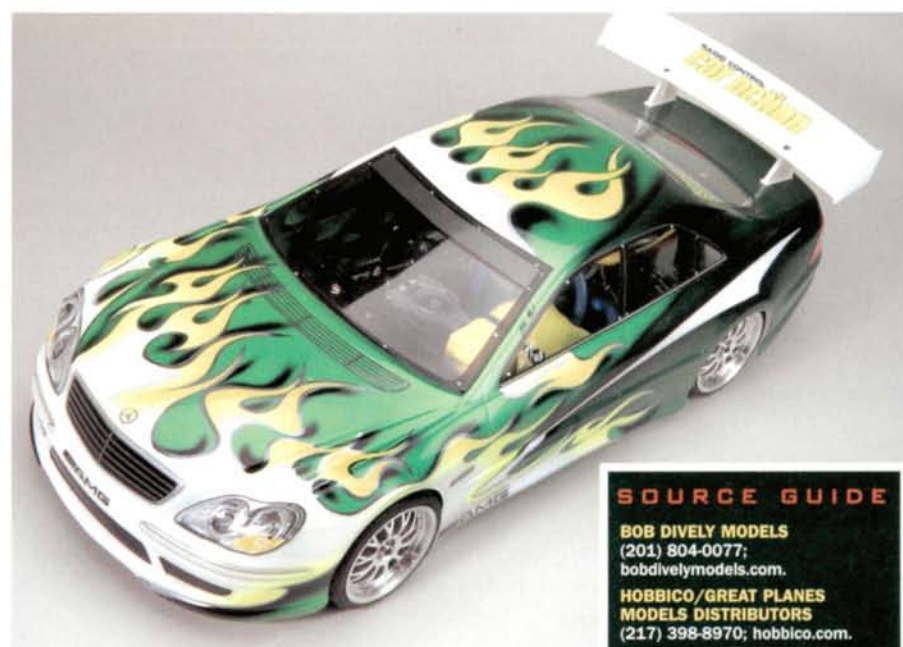
## BODY SHOP



**6 ADD SHADOWS.** I removed the the flames' background and added drop shadows. To create these shadows, I used straight black (unmixed with color or thinner) for the faded stripes along the edges of the flame licks. To spray the shadow, just apply a coat of paint over the flames and overlap the edges.

### 7 SPRAY THE MAIN BODY COLOR.

After I painted the drop shadows and allowed the paint to dry, I evenly laid down emerald green paint on all the unpainted background areas.



**8 CLEAN UP AND ADD THE DECALS.** All that's left to do is to remove the last bits of mask from the windows and around the body, wipe away any sketch marks with alcohol and detail the body with stickers. Flame on! ■

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# backlot

RANDOM RADIO CONTROL RAMBLINGS

## Derek did it— what's your excuse?

Hey, kid ... while you're out there dreaming about somehow being handed a job in the RC industry, Derek Kopecky is making it happen. At just 18 years old, Derek doesn't just have a job at an RC company—he owns one! I caught up with Derek in his booth at the RCX show to see how he was able to go so far, so fast.



### Is Extreme Standz your first business?

I actually started in the RC business with an online hobby shop. From very early on, I always knew that I wanted to work for myself. One of my first "real" jobs was working as a busboy, and after two days, I quit; I just knew right away that I wanted to have my own business. So when I was 16, I started an online hobby store, getting parts from a nearby distributor in Salt Lake City.

### That seems like a big leap. How were you able to finance the online business?

Before I started the online hobby shop, I initially did all sorts of landscaping work combined with other assorted odd jobs to make money. I used my savings from those jobs to finance the online business. I had to write a letter to the distributor stating that I wasn't interested in buying the parts for just me and my buddies; they thought I was just some random kid trying to scam parts. I really had to prove to them that I was serious! In the end, the distributor made me purchase \$2,000 worth of parts to show it really wasn't some sort of prank. After the order was confirmed, I started up the business.

### Tell me about Extreme Standz. What motivated you to launch this new brand?

I had the idea for the product, and I put together a professional PowerPoint presentation and sent it to a ton of manufacturers to see whether they wanted to get involved in the project. No one seemed to be interested; I'd call to follow up, and some of them didn't even reply. Others simply sent my presentation back to me. I started to worry that I had basically just sent them my ideas, so at that point, I figured it was best to go forward with my own plans.

### And now you have a real product— injection-molded, with logos and all. How did you make that happen?

I designed the actual product and the logos and applied for the patent myself. I even outsourced the injection molder. I looked around and found a local vendor who was 75 percent cheaper than others I had been getting quotes from, so I went with him. He really helped me get the project off the ground.

### How's the RCX show going for you? Is this your first RC show?

The show has been great; there's been a nice big crowd on both days, and people came up who were interested in distributing my product. I'm definitely planning to come next year!



## ✖ PLUG ALERT

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## Derek's young-guy trying to make it tips

1. If you want it bad enough, you can do it. Don't quit.
2. Take a business or economics class in school. It's a great way to learn the basics of business.
3. Don't let anyone steal your ideas. The biggest lesson I learned so far is to keep your product ideas to yourself. If you need assistance, financial or otherwise, turn to your family for advice.



BY JOHN HOWELL

## WHAT'S NEXT?

Derek has many plans in store for his business. He recently finished his freshman year at the University of Utah (where he's studying engineering), and he looks at where he is now as only the beginning. "Hopefully, one day, I'll design my own car; then I'll know I've really made it," adds Derek.

One thing that matters greatly to Derek is that he wants to start his own organization for kids who are looking for help and advice. "There was absolutely nothing out there to help me when I was getting started," adds Derek. His goal is to give kids aid and sponsorship to help them start their own businesses. "I'd like to put aside a certain percentage from each stand I sell toward making this goal a reality," says Derek. His advice to kids who want to get their foot in the RC industry door: "If you want it bad enough and someone tells you that you can't do it, that should be fuel enough to go out and do it anyway; just remember, even grownups can be wrong." ■